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HAROLD S. BUTTENHEIM
Editor
ALDEN W. WELCH
Secretary and Research Editor
WILLIAM S. FOSTER
Engineering Editor

EDGAR J. BUTTENHEIM
President
HERBERT K. SAXE, Treasurer
PRENTICE C. FORD, Ass't to President
Maj. MYRON MacLEOD, Advertising Mgr.
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THE MUNICIPAL INDEX AND ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places local officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments—555 pages, published annually by THE AMERICAN CITY MAGAZINE CORPORATION, 470 Fourth Avenue, New York 16, N. Y.

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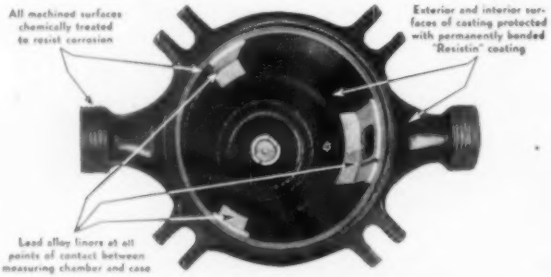
Details Make Perfection

TRIPLE PROTECTION FOR CAST IRON CASE

THE FINEST GREY IRON CASTINGS: It takes fine cloth to make a fine gown and only top grade iron castings are used for the Victory. Note the recesses cast in the interior walls to hold the babbitting that forms the protective liners between outer case and measuring chamber.

POURING LEAD ALLOY LINERS: View shows the interior of the Victory case after the lead alloy liners have been poured but before machining. This lining (patent applied for) provides a perfect jointing surface to prevent corrosion which would make removal of interior parts difficult.


All machined surfaces chemically treated to resist corrosion
Exterior and interior surfaces of casting protected with permanently bonded "Resistin" coating
Lead alloy liners at all points of contact between measuring chamber and case

COMPLETE 3-WAY PROTECTION: The three-way method of covering the cast iron surfaces of the Victory, detailed above, provides a fully rust-proof design; one that is treated, coated and laboratory tested to assure protection both for the duration and for years to come.

in

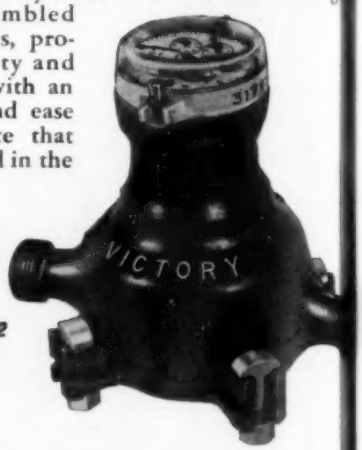
THE Empire VICTORY Meter

PERFECTION is only an ensemble of detail In the Empire Victory, the care and attention that have been devoted to even the most minute details put this meter head and shoulders above the rank and file of other so-called war model meters.

The protection afforded the cast iron case against rust and corrosion is an outstanding example of design perfection. Not content with providing a mere "duration" stop-gap for bronze cases, Pittsburgh-National technicians perfected a three-way method of sealing the casting and machined surfaces to assure a permanency obtainable in no other make.

The "crown" of the Victory Meter is the all-glass register box—another development of Pittsburgh-National research.

On the operating side, this meter has the time-proven Empire oscillating piston design, unequalled for accuracy and long life. Here, too, such details as a snap joint measuring chamber and the use of only three interior bronze castings that are assembled without screws, provide simplicity and compactness with an accessibility and ease of maintenance that are appreciated in the meter shop.



THE Empire VICTORY METER

A Fully Protected Iron Case Water Meter with Clear Vision All-Glass Register Box

PITTSBURGH EQUITABLE METER COMPANY

BOSTON · BROOKLYN · BUFFALO · CHICAGO · COLUMBIA · HOUSTON · KANSAS CITY · LOS ANGELES · MEMPHIS · NEW YORK · PITTSBURGH · SAN FRANCISCO · SEATTLE · TULSA

MERCO NORDSTROM VALVE COMPANY
Main Offices, Pittsburgh, Pa.
NATIONAL METER DIVISION, Brooklyn, N. Y.

INVEST TODAY IN BONDS FOR VICTORY

PITTSBURGH-NATIONAL Water Meters

Detailing a City's Post-War Projects

Redwood, California, Sets Forth Its 6-Year Planned Program of Public Works

THROUGH the courtesy of Robert W. Mead, City Manager of Redwood City, THE AMERICAN CITY is enabled to present the following detailed statement of the 6-year program of public works of that forward-looking California city (1940 population, 12,453). The tabulation follows a style somewhat similar to that of the 3-year program of Albuquerque, N. M., as set forth on page 5 of the August 1943 issue of this magazine.

AIRFIELDS ..... **$ 41,000**

Acquisition of a suitable site of approximately 100 acres. Construction of hangar, auxiliary building, paved runways.

ASSESSOR **24,500**

Reappraisal of all city property.

CORPORATION YARD ... **28,000**

Additional buildings, landscaping, and motorized equipment.

ELECTRICAL **95,000**

1. Comprehensive overhauling of street-lighting system as well as new extension of service in various locations throughout the city 35,000
2. Considerable portion of overhead lighting and power system should be placed underground 60,000

ENGINEERING

This heading includes many separate projects as follows:

DRAINAGE **59,950**

Construction of ditches, storm-water pipe drains and catch basins, syphons, flood control.

SEWAGE-TREATMENT PLANT .. **228,500**

Collect and treat all domestic sewage. Plant will necessitate 24" inverted syhpon, 40 manholes, excavation, pumping plant including dry and wet wells, primary clarifier, sludge digestor, sludge beds, control house, land, and right-of-way.

STREETS AND ROADS **51,700**

Surveys, repairing, resurfacing, rebuilding street pavements, sidewalks, curbs, curb and gutters throughout the city.

BRIDGES **71,700**

Replacing timber type bridges with concrete structures (nine in all).

CREEKS AND CHANNELS **69,900**

Realignment of natural water courses by trimming slopes and paving same with either rock facing blocks or gunnite and mesh construction.

MISCELLANEOUS **187,600**

1. Official survey and maps of city to coordinate many irregularities in old subdivisions and establish city boundaries $32,000
2. Retaining wall 3,000
3. Acquisition and improvement of parking lots 58,000
4. City dump — acquisition of land and equipment 16,000
5. City entrances—suitable designing for four entrances to city 13,000
6. Southern Pacific Passenger Station area — landscaping, etc. 5,500
7. Street name plates and markers 8,800
8. Pedestrian underpass or overpass at Broadway and El Camino Real 26,000
9. Remove obstructing pipes at all bridge and culvert crossings 3,200
10. Redwood Highlands Sewer System — Build 14 brick manholes to replace existing terminal lampholes inside blocks 1,400
11. Valota Road Sewer —right-of-way outlet, sewer, manholes 11,000
12. Topaz Street Sewer —sewer, laterals, manholes 3,700
13. Car Shelter back of City Hall 6,000

FIRE PROTECTION **100,000**

1. Motorized equipment — additional fire fighting equipment recommended by Board of Fire Underwriters of the Pacific 29,200
2. Fire alarm system —140 additional fire alarm boxes including all installation details .. 28,000
3. Additional outlying fire stations .. 22,500
4. Remodel and additions to present fire stations 13,300
5. 100 double outlet hydrants to be provided to complete minimum recommended by Board of Fire Underwriters of the Pacific .. 7,000

LIBRARY **34,000**

1. Shelving units—present installations insufficient .. 4,000
2. Site and cost of construction for future branch libraries 30,000

POLICE **1,000**

Present facilities adequate. Provision made for miscellaneous improvements

PARKS & RECREATION .. **223,900**

1. Development and improvement of neighborhood parks 36,400
2. Street tree planting program 30,000
3. Yacht Harbor—Paving of approach roads and parking spaces. Construction of catwalks . 12,000
4. Community Recreation Center. Acquisition of land, dancing pavilion, landscaping, playing fields — child and adult, tennis courts, swimming pool, lighting, barbecue pits, etc. 145,500

PUBLIC HEALTH **125,000**

Municipal hospital — acquisition of land, buildings, landscaping, and equipment.

WATER DEPARTMENT .. **120,000**

Replacement of water mains which are now inadequate. It is estimated that 5,000 lineal feet 12" main, 10,000 lineal feet 8" main, 12,000 lineal feet 6" main will be necessary to give adequate service. Additional reservoir capacity will have to be developed.

"City Planners from Little Children Grow"

Under this heading *The School Executive* carries in its October issue a stimulating story of how some seventh-graders in San Francisco became ardent advocates of city planning after a study of community conditions in their own district.

Believing that this method of citizenship training through cooperation between public school and planning commission is worthy of emulation elsewhere, THE AMERICAN CITY will send a copy of this issue of *The School Executive* without charge to any subscriber mentioning this item.

She Still Has "The Voice With A Smile"

War traffic keeps her busier than ever but she manages to keep calm and pleasant.

She still has "The Voice With A Smile" even when the lights are thick on the Long Distance switchboard and the circuits are crowded. Even when she has to ask you to —

"Please limit your call to 5 minutes. Others are waiting."

That's to help everybody get better service and you couldn't ask for a better reason than that.

BELL TELEPHONE SYSTEM

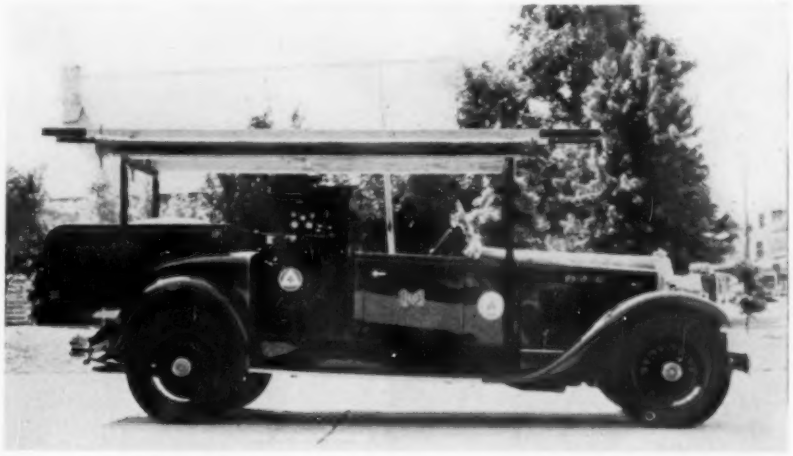
Our Municipal Notebook

Use OCD Appliances Outside the Cities

AT the Fifth Annual Pennsylvania Firemen's Training Conference in Lewistown on August 16, Dr. David J. Price, president of the National Fire Protection Association said: "When we consider the large amount of rural area now unprotected from the hazards of fire, it would seem that the National Fire Protection Association, Department of Agriculture, Office of Civilian Defense, and other interested agencies could render a very important post-war service in working out a plan for allocating to these unprotected rural areas any surplus fire-fighting equipment which may be available after the war. If a plan of this nature could be worked out, it is reasonable to assume that in a few years following the war there would be a marked reduction in farm and rural fire losses in the United States, which at present total more than 60 per cent of the entire fire loss of the country." Why not provide at no cost, additional fire protection for rural communities in the post-war period? The Office of Civilian Defense has provided a large amount of fire-fighting appliances primarily for the use of auxiliary firemen. The numbers of pumps of various types are given in Major General U. S. Grant's letter on this page.

Writes General Grant of OCD

APPROXIMATELY 18,000 500-GPM pumps have been bought by this office on the basis of 9,000 trailer pumps, 6,000 skid mounts, and 3,000 front-mount models. Each pumper is equipped with the necessary hose, nozzles, and other fittings. Of the total number procured, a small reserve will be retained in storage for replacement purposes and to meet emergencies. In addition, 2,225,000 pump-tank extinguishers have been purchased for use by fire guards in extinguishing local fires before they reach an extent requiring the help of the regular fire department to get them under control. These figures do not include the stirrup pumps that have been made available for local purchase in various communities. From present indications it appears that the provision of the above amounts of fire protective equipment will be sufficient to meet the protective program for which the Office of Civilian Defense is responsible.



This is an additional piece of apparatus devised by the Norristown Fire Department, consisting of a 500-gallon OCD skid-mount pump on a Packard chassis. What shall be done with these 18,000 OCD pumps so that they will not slow down improvements in factory-built fire apparatus? The question was answered on page 7 of the August 1943 issue of THE AMERICAN CITY

The article "Post-War Use of OCD Skid Pumps," in the August issue of THE AMERICAN CITY, has been read with special interest. The legislation under which these pumps have been purchased provides only for their loan to communities in order to help them meet the special hazards arising from the war. It is manifestly still too early to consider what disposition can best be made of them after the war is over. As this will have to be determined by appropriate legislation at that time, I am obviously in no position to state what that will be, but the suggestions made in the article are certainly of interest and should be kept in mind when such additional legislation on our reversion to a peace status is under consideration.

U. S. GRANT, 3RD,
Major General, U. S. Army, Chief,
Protection Branch, OCD.

Make Farmers Want to Protect Implements

A FARM fire-protection program advocated by Dr. David J. Price on this page merits support; but there should be neither force nor restrictive government regulations in the program. This also appears to be the opinion of many fire chiefs. We favor arousing in the farmer a desire to safeguard with fire pumps the farm tools which he selects and purchases with such care.

THOMAS M. BURTON,
Vice President, D. B. Smith & Company, Utica, N. Y.

Are you planning your post-war street lighting now?

Separate Contract for City Equipment

WE do not recall any case where public-works contracts using the fixed-sum method of purchasing mechanical equipment has been in litigation. As a general rule, purchases handled in this manner have gone through very smoothly.

I am interested in a suggestion that in certain large cities there might be objections from unions "to forestall any squeezing of the workers." Most of our projects in larger towns have involved 100 per cent unionized conditions. We never have had any complaints from the organizations, nor do we see any basis for such a complaint.

The equipment manufacturer seldom installs the equipment. He is sometimes required to furnish an installation engineer, the cost of such service being included in his bid price, but the skilled and unskilled labor of installation is normally a part of the general contractor's work. I would appreciate details as to how this system could get into labor relations difficulties.

HOWARD R. GREEN CO.,
Cedar Rapids.

Can Fire Engines Take It!

THE 18th annual report of the Fire Chief of Beverly Hills, Calif., notes that its 22-year-old American LaFrance reserve pumper cost only $8.17 for maintenance and repair during the year 1942, though it traveled enough to consume 133 gallons of gasoline.

Snubbing Lake Michigan

. . . with a 1½ million gal. HORTON ELEVATED TANK

SITUATED on the shores of Lake Michigan—Manitowoc, Wisconsin ignores this 22,400-sq. mi. body of water and turns to a 1,500,000-gal. Horton elevated tank for its water supply. This faith in elevated storage to meet both today's and tomorrow's needs is echoed throughout many cities where Horton tanks are serving as symbols of thoughtful planning.

Manitowoc's radial-cone bottom tank replaced a 250,000-gal. standpipe which served as the only storage in the distribution system supplied by three groups of wells and pumping stations. Since the installation of this tank, distribution pressures have been improved. Some of the other benefits provided by elevated storage are: (1) provision for pumping during off-peak periods (2) adequate reserve in case of power failure and (3) maintenance of ample reserve for fire protection.

War activity and shifting populations increase the demands on water supply systems. Proper maintenance of elevated tanks can help guard a municipality's water supply.

ARMY E NAVY

Awarded to our shipyard at Seneca, Ill., and our drydock yards at Eureka, Cal., and Newburgh, N. Y.

CHICAGO BRIDGE & IRON COMPANY

NEW YORK • CHICAGO • TULSA • CLEVELAND • HOUSTON • HAVANA
PHILADELPHIA • SAN FRANCISCO • BIRMINGHAM • WASHINGTON

Water Supply and Treatment

Controlling Corrosion with a Limestone Filter

A CORROSIVE, staining water supply, caused by the presence of carbon dioxide, iron, and manganese, can be efficiently and inexpensively corrected by limestone filters, according to a report by the Agricultural and Mechanical College of Texas.

The conventional corrective treatment includes areation coagulation, sedimentation, and sand filtration. The necessary apparatus is elaborate and expensive. Aeration removes carbon dioxide from the water and adds oxygen, both of which favor the precipitation of hydrated oxides of iron and manganese, but do not insure complete removal.

The Texas Engineering Experiment Station recognized the seriousness of this problem for many cities in this state. Unnecessary and heavy expenses for pumping, main cleaning, and renewal of corroded pipe are the results of using water with these characteristics. Inasmuch as experiments elsewhere had shown the possibilities of limestone filters, it was decided to determine the adaptability of native Texas limestone for this purpose. Preliminary observations showed that certain of these materials would give the simplest and most economical treatment procedure for many water supplies. The characteristics and specifications for a satisfactory limestone were carefully studied and are presented in detail.

Pilot plants were established in certain cities where the problem was particularly difficult to handle. They consisted of chemical feed devices, mixing basins, sedimentation basins, filter and clear well. Chemicals included lime, powdered limestone, burnt limestone and alum. Both filter sand and crushed limestone were used as a filter medium.

How It Is Done

From the basis of these tests investigators determined that the most satisfactory treatment is aeration followed immediately by filtration through a limestone filter. They determined that losses of limestone are moderate and that the iron removed from the water by the limestone filter is easily removed from the filter by backwash. Operation of the filter is exactly like the operation of a rapid sand filter, according to their experience.

The filter runs for the limestone filter were of only 12 to 24 hours duration. However, this did not prove to be the handicap they had originally expected since the loss of water from backwashing was no greater than is the case with a rapid sand filter.

For existing filter plants, feeding powdered limestone or partially calcined limestone in addition to the chemicals now used would give considerable relief from corrosion and staining troubles at a very moderate cost.

Front-Line Defense Against Inflation

THERE are reasons for water departments being able to withstand the vicious upswing of costs and prices better than certain other businesses and services. Wells and rivers do not cause wage disputes. Distribution systems do not appeal to any state or Federal transportation commissions for a raise in transportation rates. Pumps, if properly serviced, make few "demands" on their employees and cermands" on their employees and certainly are poor prospects for labor organizers.

However, there are equally good reasons for raising water rates if officials are inclined to scout around and find them. Labor costs are greater. Maintenance costs have increased. Priorities, materials shortages,—in a pinch one can always drop back on that eternal excuse for everything unpleasant—the War.

Therefore it is like reading about a home-front victory when the information is disclosed that the Water Department of Spartanburg, South Carolina, quietly ignored that "old debbil" inflation and reduced its water rates by 5 per cent. The Commissioners demonstrated more than good business ability. They showed the kind of interest in consumer welfare that a municipal service of this type should demonstrate.

Congratulations

Beat it, if you can. Go into the stores and price any articles on sale. Compare the prices now and those of a year, or several years ago and you will find that increases have been made in all. War has produced a scarcity of labor, raw material, foods and other commodities and your pocket book has been a victim.

But what you cannot beat is the action of the waterworks commissioners who yesterday lowered the price of water to the citizens of Spartanburg in the face of rising prices for practically everything the consumer buys.

Water bills in future will show a reduction of 5 per cent. The announcement of the commission said: "This reduction is not the full realization of our ambitions and desires, but we feel justified in passing this on now on account of the higher cost of living conditions and just as soon as practical and the interests of quality and quantity are not jeopardized, other reductions will be made."

On behalf of [illegible] munity T[illegible]

As is too often the case, fine work is recognized everywhere but at home. However, the people of Spartenburg, S. C., do not conform to this rule, as evidenced by the fine message of congratulations to the water works from SPARTANBURG HERALD.

Introducing WPB—2274

FORMS PD-200, PD-200B, PD-1A, and CAMP-4C, veteran wartime servants of the water-works officials, are all back numbers as the result of a new administrative letter by J. A. Krug, Director of the Office of War Utilities.

This letter notifies operators of a new form WPB-2774 to be used by water utilities when applying for authority to begin any new construction, when requesting priorities assistance, or an allotment of controlled materials. It also is to be used in applying for an amendment to a previously submitted application when the utility is requesting an improved rating on one or more items previously authorized, additional or new items whether or not they require a rating and allotment of controlled materials, or the elimination of items whether or not they were previously rated and allotted controlled materials.

The form also should be used when requesting reconsideration of an application previously denied. The form is simplified when the application involves an expenditure of less than $10,000.

Accompanying Mr. Krug's letter were detailed instructions covering data that should be filed in support of water-project applications for which priority assistance is requested under WPB 2774.

"Every water utility operator," states Mr. Arthur E. Gorman, Director Water Division, Office of War Utilities, War Production Board, should be familiar with these instructions. If followed carefully they will greatly expedite processing of the application."

Pipelines follow the Yanks and their Tanks

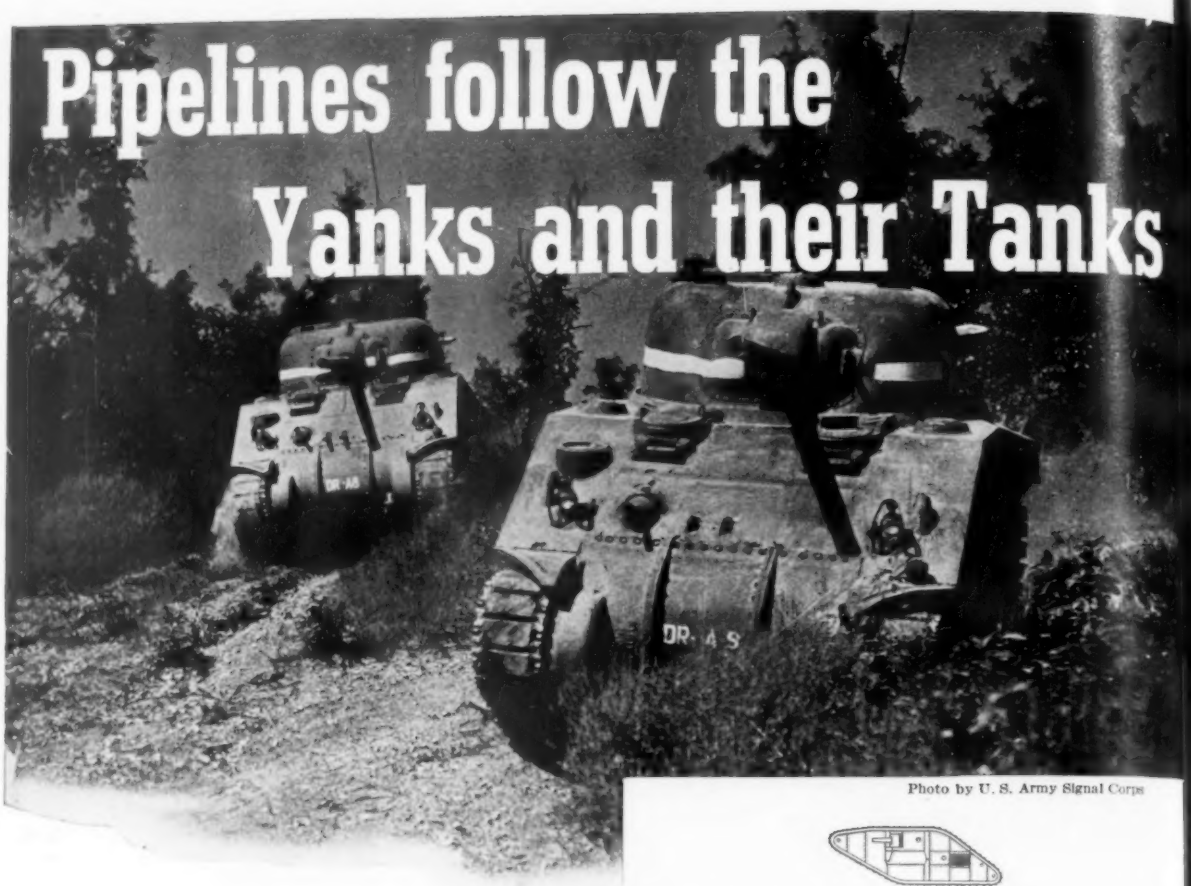
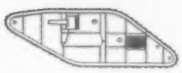


Photo by U. S. Army Signal Corps



This is one of the newest of the Army insignias—the emblem of the Armored Force, officially authorized on February 25, 1942. It shows the first successfully operated tank used in World War I, an American tank which was known, strangely enough, as the Mark VIII. Prior to this, when tank units were a part of the Infantry, the same tank was placed on a background of crossed muskets.

The Armored Force is a part of Army Ground Forces.

WHEREVER our Armored Forces go, pipelines quickly follow . . . for a Division's tanks and tank destroyers, trucks and jeeps swallow gas, oil and water in million gallon gulps.

Pipelines—in port and base areas and in advanced outposts—carry the gas, oil and water where it is needed. Dresser Couplings quickly and easily join the pipe that forms these lifelines of battle, and Dresser split sleeves and clamps help keep these lines in efficient operation.

These important Dresser products are available in practically all sizes and quantities for necessary work under proper preference ratings. Write for our condensed catalog, "How to Join and Repair Pipe."

Dresser Manufacturing Co., Bradford, Pa.

DRESSER

Pipe Couplings, Repair Devices, Rings, Wheels, and Forgings for War

Street Maintenance and Snow Removal

Asphalt Paving Ban Lifted

LIFTING of the ban on paving uses of asphalt, asphaltic products (except road oil), tar, and tar products was announced recently by Petroleum Administrator for War, Harold L. Ickes.

This action was taken by revoking a formal PAW recommendation (No. 45), which was issued in October 1942, controlling the use of these products throughout the country.

The ban on the use of road oil, however, was continued by issuing Petroleum Directive No. 72, effective today, which prohibits the delivery or acceptance of road oil for paving or dust palliative purposes on roads or any other surfaces in the United States.

Explaining the dual action taken, Deputy Administrator, Ralph K. Davies said, "During the past year there has been a decrease in military demands for asphalt and tar products due to the completion of major paving projects, so that now the supply and demand have approached a balance and there no longer is an over-all shortage of these petroleum products. For that reason, Recommendation No. 45 was revoked.

"However, the provisions on the use of road oil were continued (under Directive 72) since this product is used to make residual heating oil, which is required for manufacturing and other essential purposes."

Frost Boils and How to Treat Them

SIGNIFICANT to the engineer or city official responsible for the construction of roads, streets, or airport runways, is the investigation by F. O. Slate, research chemist at Purdue University, reported in the 1942 Highway Research Board Proceedings in a comprehensive paper entitled, the "Use of Calcium Chloride in Subgrade Soils for Frost Prevention."

According to Mr. Slate, comparatively small percentages of calcium chloride in solid will prevent detrimental heaving. He found that protection from frost heave can generally be obtained by 2 per cent calcium chloride in silt, 1 per cent in clay, and ½ per cent in graded mixes. Subgrades can easily be treated by spreading flake chloride over the surface. Surfaced areas also can be treated, it is reported, by backfilling a series of borings with a mix of 2 parts of sand or pea gravel to 1 part of calcium chloride.

Considerable interest also is indicated in soil treatment with concentrated calcium chloride solution which may be expected to disperse more readily, minimizing the need of scarification in the open-surface method.

Although the permanency of such treatment is not established, tests show that there was very little loss of calcium chloride content after 5 years of base coarses under black-top surfacing.

The calcium chloride industry is planning further research on the subject and is cooperating in special treatment work through its field representatives. Reprint copies of the Slate report are available on request—write the Calcium Chloride Assn., 4145 Penobscot Bldg., Detroit 26, Mich.

Improved Garage Urged For Post-War Project

MORE adequate facilities for the Highway Department serving Manchester, N. H., are being urged by the Taxpayers Association of that city. This civic group asserts that the present yard is not only too small to adequately serve, but is expensive to maintain.

As an alternative, the Association urges the use of a second area owned by the city known as the Valley Street Yard. This location, 5 acres in size, now contains idle land that could be used to accommodate all the equipment. The central location is pointed to as an advantage in carrying out a system of scheduling men and equipment and systematically repairing equipment.

The association strongly recommends the completion of detailed plans and arrangements for financing the project.

Bicycle Roads?

IN automobile-minded United States, few engineers or city officials give serious consideration to providing extensive special areas of roads for the cyclist. In the event that our designers wish to keep abreast of good practice in this field, "just in case," here are some thoughts on bicycle traffic by Swiss authorities reproduced in the British publication *Municipal Journal and Local Government Administrator.*

Methods of Segregation

These engineers state that bicycle traffic should be segregated either by diverting it to side roads with good surfacing, by reserving part of the road for the cyclist, or by constructing a separate small roadway, paralleling the main road, specifically for their use.

Although the ideal solution is to provide a special road for cyclists, these authorities feel that a compromise might be reached by combining the footpath with the bicycle path. These tracks should be at least six feet wide and clear of obstructions. When cycle traffic reaches a peak density of 100 bicycles per hour, then, in the opinion of these authorities, separate trails are justified.

PHOTO FROM THE MICHIGAN MUNICIPAL REVIEW

Here is another reason why snow removal will be a tougher proposition than ever in Negaunee, Mich. Street Superintendent Fred Pearce lost not only men but machinery and equipment when this city contributed its Snogo to help beat the Axis.

LEADITE

Trade Mark Registered U.S. Pat. Office

The Pioneer Self-Caulking Jointing Material for Bell and Spigot Water Pipe

Products

LEADITE and the following tools and equipment for use with LEADITE:

BRAIDED JUTE, JOINT RUNNERS, GASOLINE and WOOD BURNING MELTING FURNACES, POURING LADLES, POURING POTS, YARNING IRONS and METAL POURING GATES.

Description

Leadite is principally used for making joints in cast iron bell and spigot water mains; is shipped in powder form in sacks containing 100 pounds.

Users

Water works superintendents, engineers, contractors, mines, railroads and industrial plants all over the world use Leadite. Thousands of miles of pipe jointed with Leadite are in service.

Method of Use

The joint space is first "yarned" and the Leadite is melted and poured into the joint, but requires no caulking. Leadite melts at approximately 250° F. Lead melts at approximately 620° F.

Comparative Quantities

One hundred pounds of Leadite are equivalent to approximately four hundred pounds of pig lead based on the joints being made the same depth with either material. It will be easy to figure the approximate quantity of Leadite required for any given quantity of pipe by referring to our Reference Table, copy of which we shall gladly send to you upon request.

Comparative Cost

Under normal conditions, the economies effected by the use of Leadite save approximately 50% to 75% over the method which requires caulking, owing to the saving effected in material and labor.

Saving

Because Leadite saves on the items of caulking charges, digging of large bell-holes and reduces cost of trench pumping to a minimum, Leadite eliminates most every superfluous operation in jointing cast iron water mains, thus permitting the work to be completed with the least amount of effort.

Tools

As no caulking is required, fewer tools are needed.

No Caulking

Leadite joints require no caulking because Leadite adheres to the pipe from the yarn or jute out to face of bell, making a watertight bond. However, a Leadite joint may be melted or cut out at any time if desired in making connections, etc.

Durability

Leadite has been tested and used for more than 40 years and experience has proven that Leadite joints improve with age.

Expansion and Vibration

Leadite is used with excellent results under railroad tracks, highways and over and under bridges where severe vibration has demonstrated the value of using Leadite on this class of work.

Utility

Leadite is very easy to handle. It is used on all sizes of pipe from four to eighty-four inches in diameter and under all conditions and pressures encountered in water works construction.

Electrolysis

Leadite resists electrolysis.

Damage Suits

Claims for damages caused by joints blowing out are reduced because Leadite joints, if properly made, will not blow out under any pressure common in water works construction.

Transportation

Considerable freight charges are saved because Leadite is light in weight. This also means a saving in cartage and handling on the work because you move approximately one-fourth the weight of jointing material.

Delivery

We make prompt shipments of Leadite in any quantities from stock.

Fuel

Saves fuel because you melt approximately one pound of material instead of four, and less heat is required to melt Leadite than is needed to melt lead.

Be sure it is Leadite and not something "Just as Good"

THE LEADITE COMPANY
Girard Trust Company Bldg., Philadelphia 2, Pa.

No Caulking

Sewerage and Sewage Treatment

Victory Garden Sludge by the Gallon

ARE you looking for a simple, yet profitable way to dispose of sludge that is popular with gardeners and farmers? This is the way David Backmeyer, Superintendent of the Marion, Ind., sewage-treatment plant handles the problem.

Last spring he spent $95 to build a 950-gallon cypress tank on a truck, so that it could handle either sludge cake or liquid sludge. The tank has two outlets, one equipped with a small portable pump, the other discharging the liquid sludge by gravity. During the following spring and summer he offered sludge for sale at a cost of $1.00 to $2.50 per tank load, depending on the length of haul. Generally speaking, each load has averaged five miles for the round-trip and netted $1.50.

When distributing the sludge over small plots or in places difficult for the truck to operate, the pump with a length of fire hose is used. However, on larger fields, all that is required is to drive the truck slowly and drain the tank by gravity, the flow being controlled by a gate-valve.

To visualize what the purchaser gets with this arrangement, Mr. Backmeyer states that the average load containing 8.6 per cent solids will contain 667 pounds of solid material. Estimating the nitrogen content at 2 per cent and the phosphorous content at 2.4 per cent, the purchaser gets about 13 pounds of nitrogen and 16 pounds of phosphate. At the current market rate of 14 cents per pound for nitrogen and 5 cents for phosphate, this makes an equivalent value of $2.62.

"Even if the soil conditioning value of the sludge as a humus is disregarded," says Mr. Backmeyer, "you can see that this is a bargain. Obviously the public knows it by the type of orders that we receive. Many of these range from 25 to 100 loads to a single purchaser. From March to April alone our revenue amounted to $215."

Mr. Backmeyer further points out that he finds it cheaper to dispose of sludge in this way. On a per ton basis of dry solids, he reports a savings of 85 cents over vacuum filtration, even if revenue is discounted.

A view of the Marion, Ind., truck that delivers sludge to victory gardens "by the gallon." Superintendent Backmeyer states that the consumer gets 13 pounds of nitrogen and 16 pounds of phosphate in the 950 gallons that the tank will carry.

Fourth Annual Meeting

Federation of Sewage Works Associations

(Check your interests)

Priorities
A. M. RAWN
WPB Sanitation Consultant
Federation Vice-President

Manpower Requirements
CAPT. C. W. CLASSEN
Procurement and Asignment Service
War Manpower Commission

Sewerage Developments

High-Rate Biological Treatment
SAMUEL A. GREELEY
Greeley and Hansen, Chicago

Grease Removal
MAJ. ROLF ELIASSEN
Corps of Engineers

Industrial Wastes
DR. F. W. MOHLMAN
Director of Laboratories
Chicago Sanitary District

Medical Significance
DR. KENNETH F. MAXCY
Johns Hopkins University

Post-War Plans
Under a panel of well-known authorities

All at the Hotel Sherman, Chicago, Oct. 21-23

Westchester County to Study Flood Control

THE Westchester County (N. Y.) Board of Supervisors on August 2, 1943, authorized the appropriation of $75,500 for an engineering study of flood control and storm water problems in the lower portions of that county. During recent years heavy storms of short duration have caused considerable damage in the relatively congested areas adjacent to stream beds. Surface water has found its way into sanitary sewers, causing the overloading of sewage pumping stations and flooding of cellars located even some distance away. The rapid building up of the areas involved has rendered many storm sewers inadequate and contributed to the acuteness of the problem.

There are six small watersheds concerned, ranging in area from 7 to 34 square miles. The study will include not only the flooded areas adjacent to the stream beds but also storm and sanitary sewers that are affected by heavy run-offs. The investigation will be made directly by the Westchester County Department of Public Works under the direction of its Commissioner, James C. Harding, and is expected to take about two years.

Sewage-Treatment Design Trends

PLANTS of the future will be more compact, utilizing common water walls, and more open conduits that will eliminate inaccessible piping and facilitate cleaning. This is the opinion of A. H. Jessup of the firm, Leeds, Hill, Barnard and Jewett, Los Angeles consulting engineers, expressed at a recent meeting of the American Society of Civil Engineers in Los Angeles.

The direct heating of sludge by steam—such as is being practiced by the Los Angeles County Sanitary District's Joint Disposal Plant under the direction of A. M. Rawn, Chief Engineer—should grow in popularity, Mr. Jessup states. This method consists of introducing live steam into the sludge prior to and during the digestion operation. Temperatures may be accurately controlled and difficulties with heat transfer coils are entirely eliminated. In this work, sludge gas burned in an ordinary boiler generates steam at approximately 20 pounds per square inch. This in turn is introduced into the sludge in a separate pit, and the warmed sludge is pumped to the digesters. The operator can maintain positive temperature control by recirculating the contents.

The practical value of the lagoon as a means of purifying primary and final effluent is also bound to be more widely recognized, he says. Recent installations call for beds designed in the ratio of 1.5 acres per 1,000 tributary population.

Essential Dow materials to aid municipal operations

Dow is the logical source of many materials essential to successful municipal operations. The cities men build create problems of sanitation and public health, service maintenance, transportation, safety and morale. All these rely, in some measure, on chemicals for their solution.

Modern sanitary practice calls for the use of Dow Ferric Chloride in sewage disposal plants. It has proven to be a remarkably efficient conditioning agent. Engineers favor it also because it permits a simpler design for disposal plants and assures a minimum of chemical and operating costs.

Many Dow chemicals serve municipalities: Dowflake Calcium Chloride, the safety factor in the control of dust on roads and ice on pavements; Saran Pipe, made from a Dow plastic highly resistant to corrosion; Dow dependable insecticides and fungicides—

These and other Dow chemicals have their logical place in the municipal program. All are products of a company that has been producing chemicals for more than 50 years and is well fortified with plants so strategically located that they are prepared to serve the entire nation

DOW CHEMICALS FOR MUNICIPAL USES

FERRIC CHLORIDE
DOWFLAKE CALCIUM CHLORIDE
CAUSTIC SODA
CARBON TETRACHLORIDE
INSECTICIDES
SARAN PIPE
ORTHODICHLORBENZENE
MAGNESIUM CHLORIDE—FLAKE

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

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New York • Cleveland • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle

Garbage and Refuse Collection

Refuse Collection Suffers at San Diego

IT has been no snap to run the Division of Refuse Collection at San Diego. Shortage of both equipment and labor has made the regular schedule of collection spotty and difficult to maintain. Present schedules call for two garbage collections and one rubbish collection per week in residential zones and daily collections in the downtown business districts.

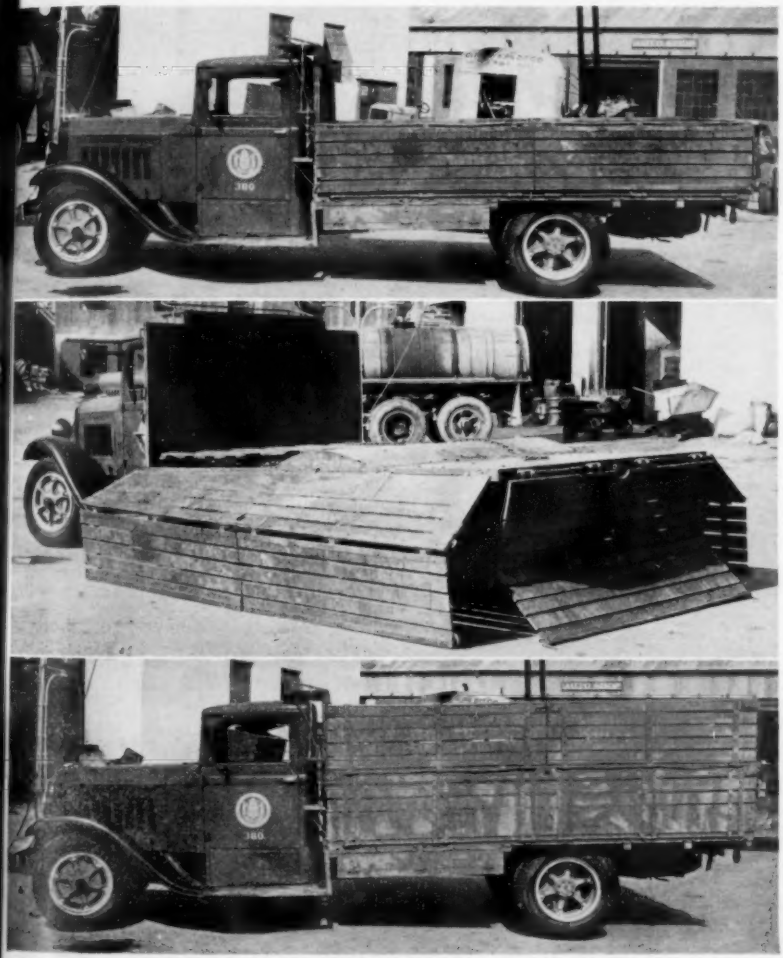
More Garbage and Rubbish

Garbage collection increased from approximately 14,200 tons in 1940 and 1941 to 17,200 tons in 1941 to 1942. Rubbish collection increased from 50,400 tons to 53,200 tons, and to top matters off the department noted an increase in the number of dead animals that had to be removed by the already short-handed crews.

Caused by Population Gain

Public Works Director, F. A. Rhodes, states that the reason garbage showed an increase was because of the increased population. The 1940 census placed San Diego's population at 203,241. However, from 1942 to 1943 it increased to 300,000, and the Office of Price Administration esitmates the present population, on the basis of ration books issued and other related data, at 385,000. This does not include the military personnel stationed there.

City crews collected garbage and rubbish from federal housing projects in nearby suburbs under contract which paid a return of 50 cents per month, per occupied unit.



Three views of San Diego's adjustable body rubbish truck. When expanded to its limit it will hold 14.2 cubic yards. The bodies are 14 feet long on top, 10½ feet long at the bottom, 6 feet wide, and 22½ inches high—and are mounted on 2-ton trucks.

Incinerators Urged to Eliminate City Dumps

INCINERATORS present a practical means of eliminating that municipal abscess, the city dump, according to Milton Rosen, Commissioner of Public Works, St. Paul, Minn. Speaking before the Annual Conference of the League of Minnesota Municipalities, he stated that the practice of dumping refuse in vacant lots or similar areas is not only unsightly, unhealthy, but also a menace to children living in the neighborhood.

Logical Solution

"I am not trying to sponsor any large expenditure for any community," he stated, "but I do believe that incineration is the logical solution for the elimination of this nuisance. In view of the fact that we have had youngsters die of ptomaine poisoning because of their eagerness to play around on these dumps and eat the attractive-looking vegetables that are sometimes thrown on them, I say that the subject is a serious one."

In St. Paul, Mr. Rosen stated that the city used vacant property in the outskirts as authorized municipal dumps. The discouraging experience that the Department of Public Works has had with them has resulted in his strongly adverse opinion to this type of municipal operation.

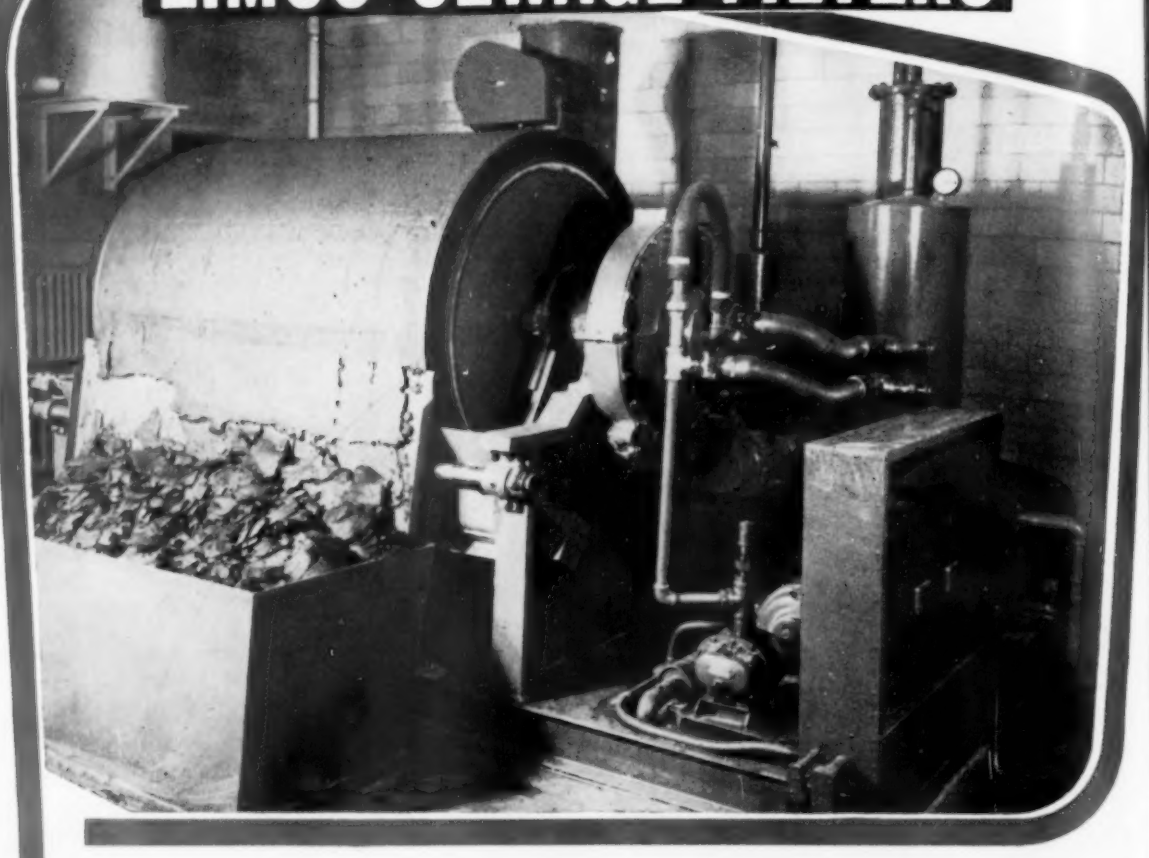
One of these dumps is located adjacent to the municipal airport. Owing to spontaneous combusion, the Fire Department has been forced to make almost daily visits there. Conditions became so bad that a ban was placed on fires in the property, and a hose has been permanently hooked up to the water main. Other dumps located close to schools, he stated, became so objectionable that teachers hesitated to open windows because of the stench.

Uses Land-Fill Method

St. Paul stations a watchman at the authorized city dumps and uses the sanitary land-fill method at the end of each day's operation, which eliminates a lot of unsightliness, as well as some of the odors that emanate from these eye sores, Mr. Rosen states.

"I hope that the time will come," he said, "when the dumping of refuse on any vacant lot will be a misdemeanor punishable by a fine in any and all commmunities."

EIMCO SEWAGE FILTERS



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- ★ Complete Design and Engineering Service.
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- ★ Backed by Nation Wide Experience.

Eimco Sewage Engineering includes research, design, construction and installations of Filter Stations.

Long established supremacy in the Sewage field is due primarily to Eimco's careful investigation of local conditions so that all equipment is custom built to predetermined specfications.

Accessories such as conveyors, sludge-conditioning equipment, vacuum systems, elevators and mix tanks are carefully designed and built to take up a minimum of floor space and to complete a compact effcient and attractive filter station.

Eimco Engineers welcome an opportunity to aid in planning post-war sewage treatments plants. Why not call on them for assistance now!

EIMCO

THE EIMCO CORPORATION SALT LAKE CITY 8 UTAH

NEW YORK 120 BROADWAY SACRAMENTO 1217 7TH ST

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Public Safety

San Francisco's Auxiliary Firemen

TWO months before the Japanese attack on Hawaii, San Francisco had ordered out of current funds 30 auxiliary fire pumpers, each with a capacity of 500 gallons per minute, with which to augment its 62 fire stations and their pumpers, trucks, chemicals, and other modern equipment. Several hundred other such pumping engines are now in service, manned by thousands of auxiliary firemen.

Wartime fire-fighting calls for ten times the number of fire engines normally required. In peacetime fire-fighting, the theory is to get as much fire apparatus to a blaze as seems necessary to control it. If the responding engine company cannot cope with the situation, a second or a third alarm brings more and more equipment. In war fire-fighting—where hundreds of fire bombs drop and dozens or hundreds of scattered fires break out simultaneously—small, mobile equipment must be relied on to fight each fire and see to it that it is controlled without calling for help.

The auxiliary fire trucks are located in strategic spots surrounding the regular fire stations. Temporary fire houses or sheds are springing up on playgrounds, school yards, and other city-owned property throughout San Francisco's residential and business sections. They are only a few blocks apart and under the control of the nearest fire-station captain, who deploys them as directed by the battalion chief of the area.

Air raid wardens, alert and on the street during an air attack, will see the fall of fire bombs, or be notified by roof watchers. The neighborhood fire squads of civilians, fire watchers, and wardens will fight them as best they can with hand pumps, while a report goes in to control center from the air raid warden. Control center orders the dispatching of regular and auxiliary fire equipment through the battalion headquarters of the Fire Department. Chief Charles J. Brennan retired on March 17, 1934, and Albert J. Sullivan is Chief Engineer of the San Francisco Fire Department.

An N. F. P. A. Cartoon

Flameproofed Wood in Place of Structural Steel

THE war has given an impetus to the fireproofing of wood, and treated wood which is either impregnated or coated with fireproofing materials is now being used instead of structural steel in large defense plants, in blimp hangers, and in other buildings.

Tests at Underwriters' Laboratories have shown that wood suitably treated can be quite resistant to ignition and to the spread of fire. And the treatment can be effective for long periods, if the wood is not exposed to the weather.

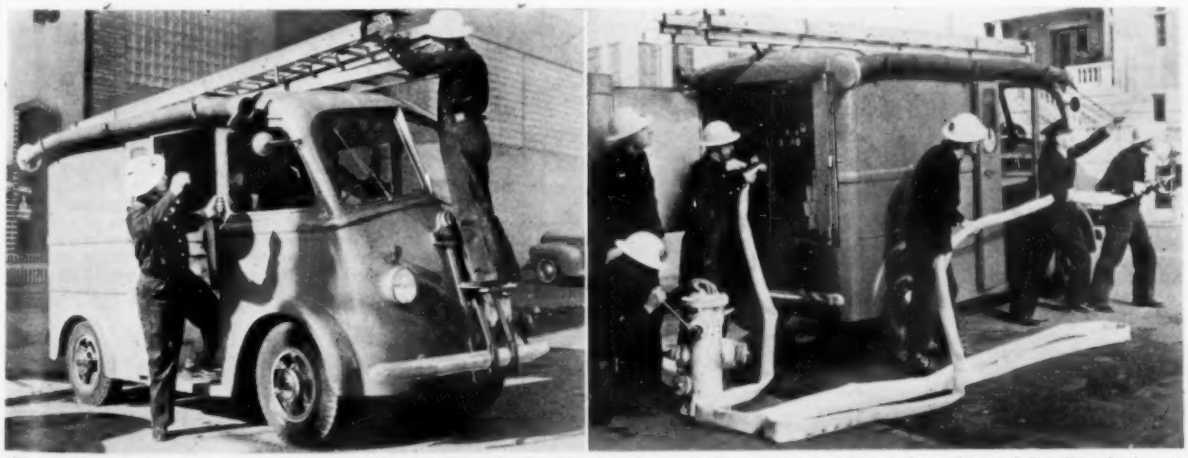
Even satisfactorily flameproofed wood will char and disintegrate under continued exposure to high temperatures. These isn't any trick to reducing the combustibility of wood; the trick is to do a good job cheaply.

JOHN A. NEALE,
Chief Engineer, Underwriters' Laboratories, Chicago, Ill.; in the "Fire Chief's News Letter."

What's a Life Worth to America?

WHAT is the value of a human life lost in a traffic accident?

That value cannot be measured, State Police Director Homer Garrison said today, but the potential productivity can be measured. In one year's time, the 539 persons who were killed in Texas accidents in the first six months of this year could have assembled 471 torpedo bombers or produced more than five times as much of the life-saving sulfa drugs as all the armed forces of the United Nations need.



The small, compact, auxiliary fire pumpers do not resemble the big fire trucks city dwellers are used to seeing. Some of San Francisco's are trailer-mounted, while 90 are "White Horses" made by the White Motor Co., with short wheelbase, permitting parking in limited areas. Doors slide back entirely out of the way for easy access, while the curb-height floor speeds the firemen on and off and makes it easy to load and unload the 14- and 22-foot ladders on top. Equipment includes a 500-gallon pump, 2½-inch single-jacket fire hose and two suction pipes.

Keep Up-to-Date on New Equipment

Please check over the following list of interesting catalogs obtainable free of charge and either write direct to the manufacturers for their literature, or, if you prefer, put a circle around the identifying numbers below to indicate the catalogs you want, mail this coupon to The American City Magazine, 470 Fourth Ave., New York, and we will see that the catalogs are sent to you without expense or obligation on your part. 10/43

831	832	833	834	835	836	837	838	839	840	841
842	843	844	845	846	847	848	849	850	851	852
853	854	855	856	857	858	859	860	861	862	863
			864	865	866	867	868			

Name ..... Position .....

Address .....

Parking Meters

831. Mi-Co Meter Division of The Michaels Art Bronze Co., Inc., 231-239 Court St., Covington, Ky., will send you a fully illustrated folder on its parking meters. This literature discusses the low maintenance cost of this meter and its construction and lists the advantages in its use.

Water-Works Supply Data

832. Water-works officials in the west should supplement their libraries with General Catalog No. 42, issued by the Pacific States Cast Iron Pipe Co., Provo, Utah. This comprehensive little booklet covers in detail the products manufactured by this company—mainly cast iron pipe and fittings, gate valves, fire hydrants, valve boxes, and manhole frames and covers. You will find general data on the products, manufacturing details, specifications, diagrams, and general instructions on the use of these products.

Flame-Proofed Canvas

833. Write William L. Barrell Co., Inc., 40 Worth St., New York, N. Y., for data on Flamefoil Finished Canvas. This protective coating insures municipalities of longer life from this canvas for it makes it flameproof, waterproof, resistant to bacteria deterioration, and increases strength and durability.

Honor Rolls

834. Write the National Ronzite Industries, 560-564 W. Lake St., Chicago 6, Ill., for sketches, specifications, and estimates on community honor rolls for your people in service. These plaques are built of weather-proofed wood in a number of attractive designs and specifications.

Water and Sewage Plant Equipment

835. If you want to bring your valve and hydrant data up to date, write Iowa Valve Co., Hubbell Bldg., Des Moines, Iowa, for their catalog and information. It gives complete information on equipment for water works and sewage-treatment plants, and "Corey Type" hydrants.

Sewer Cleaning Equipment

836. Sewer departments faced with a shortage of manpower will be interested in the complete catalog being offered by W. H. Stewart, 1051 S. Clinton St., Syracuse, N. Y. This describes the Stewart line of cleaning equipment that will help meet your sewer cleaning problems.

Duplicating Equipment

837. A. B. Dick Co., Dept. N-943, 720 West Jackson Blvd., Chicago 6, Ill., will send you full information on the Mineograph photochemical printer. This is the new method of duplicating copies of ink tracings in large or small quantities at small cost, and will find many uses in municipal departments.

Concrete Wells

838. Bulletin No. 51 is available from Kelly Well Co., Inc., Grand Island, Mich., on this company's concrete well casings and wells. This interesting booklet discusses in detail the construction principles of the wells, shows various views of the casing and gives typical installation data.

Turbine Type Pumps

839. Useful when you must circulate small flows of water are the Westco turbine type pumps of the Joshua Hendy Iron Works, Pomona Pump Co. Division, 120 Broadway, N. Y. Westco Industrial Pumps Catalog No. 43 lists general information, design data, principles of operation, and operating characteristics and illustrates the various units.

Cutting Tools

840. When faced with the problem of replacing cutting tools, municipal officials will find bulletin no. AC-10, published by the Robert H. Clark Co., 3424 Sunset Blvd., Los Angeles, 26, Calif., very helpful. This company manufactures cutting tools that are adjustable and can be made to do the work of many other tools. See for yourself what the hole cutter, fly cutter, surface facer, and thread tool grinding fixture can do.

Vehicle Tax Identification

841. Why not investigate the possibilities of Licenseals for vehicle tax identification? They can be applied without rivets, bolts, or screws but cannot be removed without being destroyed. Write Department 5810 of The Meyercord Co., 5323 West Lake St., Chicago 44, Ill., for complete information.

Leak Detector

842. As a means of conserving water supply, water-works officials should have literature describing the Globe Geophone Leak Detector. You will find a description of the principle of the Geophone, an account of how it works, and information on its construction. Write Globe Phone Mfg. Corp., Dept. "H," Reading, Mass.

Street and Garbage Collection Equipment

843. The Heil Co., Milwaukee, Wis., will send you complete details on their street sanitation and garbage collection equipment. Their streamline flushers, conveyor sanitation units, and enclosed garbage dump units are designed to efficiently meet your problems.

Salt for Snow Removal

844. Once again city officials are facing the problem of the removal of snow and ice from streets and highways. The International Salt Co., Inc., Scranton, Pa., will send you literature on the use of Sterling "Auger-Action" Rock Salt for the prevention of ice bonding to the pavement or its easy removal if it has already formed.

Chlorinating Equipment

845. Water and sewage-plant operators will want a copy of bulletin HDM-COF published by Proportioneers, Inc., 99 Codding St., Providence, R. I., on this company's Heavy Duty Midget Chlor-O-Feeder. In an easily understood manner the booklet sets forth a complete description of this pump, operating instructions, and maintenance data. It also includes sectional views and drawings of the pump and its working.

Eliminate Taste and Odors from Water

846. Water-works officials troubled with taste and odor in their water supply will be interested in "Taste and Odor Control in Water Purification," published by the Industrial Chemical Sales Division, West Virginia Pulp and Paper Co., 230 Park Ave., New York 17, N. Y. This interesting booklet after delving into the history of ancient and modern water supplies and sources of taste and odor pollution, gets down to a comprehensive discussion of the use of activated carbon for this control. You will find here the principles involved, discussion of application, storage and handling and feeding, and how to determine the doses.

Make Sewage Sludge Marketable

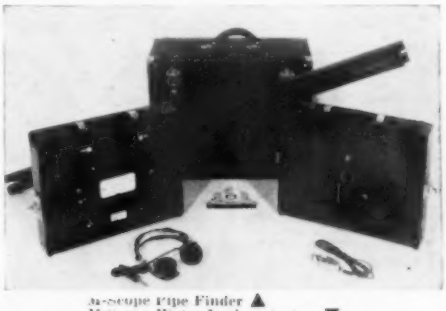
847. Do not overlook the possibility of turning your sewage sludge into a profitable soil conditioner. Bulletin 440, issued by the Rover Foundry Foundry & Machine Co., 179 Pringle St., Kingston, Pa., describes how this company's shredding machine will condition the caked, lumpy sludge, improving its marketabality as a feritlizer. The grinder may be used to mix the sludge with chemicals, improving its soil conditioning characteristics if desired. Its easy portability makes it useful on parks, school grounds, and many other similar places.

(*Continued on page 22*)

SAVE *time, money, headaches*
by using
FISHER DETECTOR INSTRUMENTS

The Fisher M-Scope Pipe Finder is successfully solving the varied problems involved in the development, operation and maintenance of buried pipe and cable systems.

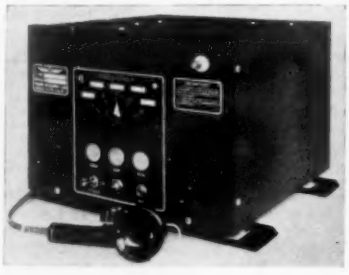
- It locates the exact position of the object
- It traces the exact course of an underground line
- It determines the difference between a buried pipe and a single metal object
- It works positively and instantaneously
- It prevents accidental damage by diggers
- It eliminates exploratory excavations
- It saves time, labor, money



M-Scope Pipe Finder ▲
M-Scope Water Leak Detector ▼

Use the **Fisher M-Scope Water Leak Detector** to determine the exact location of a leak. Its use will enable you to

- Locate exact position of pipe line leak
- Determine where to break pavement when leak appears on the surface
- Solve the problem of "unaccounted for" water or oil
- Reduce operating expenses
- Increase net revenue
- Every leak is an unmetered user



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Indianapolis Water Co.
Jamaica Water Supply Co.
Kentucky Natural Gas Co.
Long Branch, N. J. Water Dept.
Millburn Township Sewer Dept.
New York City Bureau of Water
Omaha Metropolitan Utilities Dist.
Philadelphia Suburban Water Co.
Quincy, Ill. Water Dept.
Redwood, Calif. Water Dept.
St. Louis County Water Co.
Tacoma Dept. of Public Utilities
U. S. Army, Navy, Dept. of Interior
Verona, Pa. Water Co.
Wichita Water Co.
Yonkers Water Dept.
Zeeland, Mich. Water Dept.

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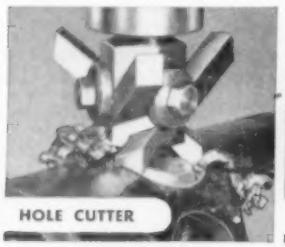
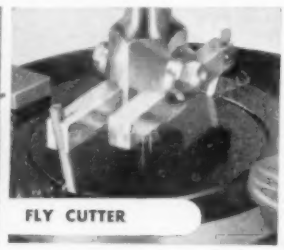
that can't be salvaged!

When worn or broken cutting tools can't be reclaimed for further service, replacement should be made with tools that conserve vital materials, time and labor. CLARK CUTTING TOOLS comply with critical requirements, do better work quicker. They use a minimum of tool steel (in cutting blades only) these can be resharpened repeatedly, replaced economically. Being adjustable, a few sizes do the work of many other tools, slash inventory. They make clean, *finished* cuts, reduce operations.



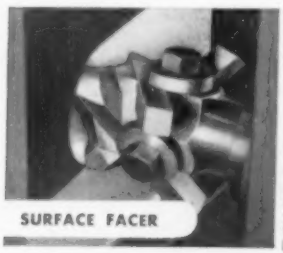


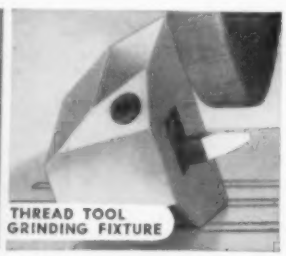
EXAMPLE NO. 1

Clark Adjustable 3-Blade Hole Cutters make accurate, smooth holes in flat or curved metal, plastics, wood, transite. 7 sizes cut ⅜" to 5", up to 1" thick. No reaming or deburring. Fewer operations are required.

EXAMPLE NO. 2

Clark Adjustable 2-Blade Fly Cutters. 2 sizes cut holes or discs 2½" to 10", up to 1" thick. Pitched blades cut true, relieve chatter. Other models cut gaskets, rings, discs from live rubber, problem materials.





EXAMPLE NO. 3

Clark Adjustable 3-Blade Facing Tools. 4 sizes cover all fractional diameters, 1¼" to 5", do the work of End, Shell and Slab Mills, Inserted Tooth Cutters. Fit all machines. Tools available with all types of blades, including carbide tips.

Write for Bulletin No. AC-10

EXAMPLE NO. 4

A real tool bit converter! Mechanic's MODEL A and Heavy Duty MODEL B for accuracy, uniformity in grinding *both* National 60° and Acme 29° tool bits. Both models handle bits for use in Armstrong Tool Holders. *SPECIAL MODEL C* for grinding Clark Hole Cutter Blades.

In Canada: DOMINION BEARINGS, LTD., Toronto, Montreal, Winnipeg
Export: THE AMERICAN STEEL EXPORT COMPANY, INC., New York, Los Angeles

Robert H. Clark Company
3424 SUNSET BLVD. • LOS ANGELES 26

WHICH OF THE CATALOGS WOULD YOU LIKE?

(*Continued from page 18*)

Hand Fire Pumps

848. Prominent fire officials say that they find Indian Fire Pumps effective in handling small fires and in mopping up fires which have been knocked down with power equipment. Write for a description folder to D. B. Smith Co., 421 Main Street, Utica, N. Y.

Protective Coatings for Water-Works and Sewerage Equipment

849. With added emphasis being placed on maintenance, water works and sewerage superintendents will be interested in Folder 590 of the Inertol Co., Inc., 470 Frelinghuysen Ave., Newark, N. J., on the use of Inertol paints and enamels in water-works plants. This comprehensive booklet lists the many places these coatings may be used in your plant and the type paint or enamel to use. Also included are general instructions on the preparation of surfaces, the quality of paint, and applications details.

Early Strength Concrete

850. Municipal officials who have charge of concrete work may secure valuable data by writing Dept. 61-9 of Solvay Sales Corp., 40 Rector St., New York 6, N. Y. Solvay Calcium Chloride is used effectively to increase early and final strength of concrete by offsetting slowing-up effects of temperature drops.

Water Purification

851. Water-works operators will be interested in bulletin No. 252, published by the American Well Works, Aurora, Ill., describing the Ferrofilter. This booklet discusses the operation of this filter that removes iron, manganese, CO^2, and other dissolved gases and odors from the water, and shows the many advantages gained from its use. You will also find a chart of typical operating results.

Reproduce Records for Safety

852. Microstat Corp., 18 West 48th St., New York 19, N. Y. will send you information on the way you can insure the safety of municipal records. This company's method of Microfilming reproduces your records and they can be stored in another place. They will show you how easily it can be done, the validity of the reproduced copy, and the way you may insure microfilmed records.

Municipal Uses of Timber

853. With the growing use that timber is finding in the municipal and other fields, municipal officials will be interested in securing from the Timber Engineering Co., 1319 18th St., N. W., Washington, D. C., their interesting booklet, "The Forest Fights." This is a pictorial account of the work timber has done since Pearl Harbor under the headings "At the Front," "Behind the Front," "On the Home Front," "Engineering in Timber," and demonstrates the adaptability of the Teco system of timber engineer which made many of these projects possible.

Reflective Signs

855. Learn how Scotchlite can help you control traffic safely and economically by writing for information to the Minnesota Mining and Mfg. Co., St. Paul 6, Minn. This reflective sheeting is adaptable to all types of signs, markers, guard rails, bridges, and similar locations. The moderate cost permits reflectorizing of all the sign surfaces in order to give the same appearance by day as by night.

Film on Tax Assessments

856. The J. M. Cleminshaw Co., Union Commerce Bldg., Cleveland, Ohio, has two copies of a 16 MM film entitled, "The Revaluation of Nassau," that they will be glad to lend for a week or two to any municipality interested in modern methods of property valuation for real estate taxation. The film runs about 35 minutes.

Sewage Gas Corrosion

857. An interesting offer is being made by Connelly Iron Sponge & Governor Co., Chicago, Ill., of testing material to help sewage-plant operators determine whether sewage gas is corroding their equipment. By exposing the testing paper to your sewage gas and mailing it back to Connelly Iron Sponge & Governor Co., you will receive a laboratory analysis measuring the corrosive qualities of sewage gas produced in your plant and telling what can be done to control it.

Sewage Treatment Equipment

854. Water- and sewage-works officials will be interested in the new catalog no. 775, published by The Jeffrey Manufacturing Co., 970-99, North Fourth St., Columbus 16, Ohio. This booklet gives detailed information on Jeffrey equipment for use in modern water- and sewage-treatment plants.

(*Continued on page 24*)

FIRE PUT OUT 10 TIMES FASTER ... NO WATER DAMAGE ... with amazing 600 lb. nozzle pressure FOG!

1 FMC High Pressure Fog in Action! Fireman using straight fog stream to knock down this hot fire quickly from a safe distance.

2 Within a few seconds, the fog has done its work on fire inside structure. Its effect can be seen from steam pouring out.

3 Fireman adjusts nozzle for wider fog pattern as he moves in closer. Fire has been knocked down and is ready to be cleaned up.

4 Fire's out! Blaze completely extinguished and fireman using fog on sofa removed from building. All this in less than 30 seconds!

10 to 35 times greater speed and effectiveness proved in hundreds of fires!

The amazing efficiency of 600 lb. nozzle pressure fog has been tested and proved over and over again in hundreds of fires throughout the country. A large percentage of these fires would have been total losses without 600 lb. nozzle pressure.

In every instance it has been demonstrated that this new, perfected fire-fighting technique is many times faster and more efficient than low pressure streams. Under 750 to 800 lbs. pump pressure, water particles are atomized so fine that one gallon absorbs up to 35 times more heat than same amount of low pressure water. The cooling effect of this is tremendous, and the fog is so completely used up that water damage is eliminated.

FMC Fog Fire Fighters are completely equipped, precision engineered, self-contained units. Plan now to have this modern fire protection in your community soon as the war ends. Get details now from: John Bean Mfg. Co., Lansing, Michigan or Bean-Cutler Division of Food Machinery Corp., San Jose, California.

FMC FOG FIRE GUN. *Trigger action and adjustable fog give fireman instant control of stream to any degree desired. Photo shows gun adjusted to close-up fog for closed areas.*

★ ★ ★

FMC FOG FIRE-FIGHTER TRUCKS *are built in several models. This unit specially designed for fighting all types of small town, rural and airport fires. Carries up to 400 gallons of water with attachments for taking water from any available source.*

FMC *Original* **FOG FIRE FIGHTER**

FOOD MACHINERY CORPORATION

Manufacturers of high pressure crash trucks for gasoline fires, and decontaminators for war service.

JOHN BEAN MFG. CO. DIVISION, 748 HAZEL ST., LANSING 4, MICH. • BEAN-CUTLER DIVISION, 448 JULIAN ST., SAN JOSE, CALIF.

Rx for Sewage, Water and Industrial Waste

PURIFICATION

What could be more important than the purification plants which treat millions of gallons of water, sewage and industrial wastes daily?

The photos (left) show the latest in mechanization for a modern sewage treatment plant producing a clear purified effluent. Similar processes are available for water and industrial waste.

By continuing development Jeffrey equipment is built to meet each new rise in standards demanded by progress. It has proved its worth in both small and large plants.

Our sanitary engineers are intimately familiar with all phases of purification . . . can help you build to higher civic and health standards.

Our NEW Catalog No. 775 goes into detail . . . send for it.

JEFFREY .... ESTABLISHED 1877

THE JEFFREY MANUFACTURING COMPANY

970-99 North Fourth St., Columbus 16, Ohio

SALES OFFICES

Baltimore	Buffalo	Detroit	Huntington	Pittsburgh
Birmingham	Chicago	Denver	Milwaukee	Scranton
Boston	Cleveland	Morton	New York	St. Louis
	Cincinnati	Houston	Philadelphia	Salt Lake City

WHICH OF THE CATALOGS WOULD YOU LIKE?

(Continued from page 22)

Keep Your Trees Healthy

858. "Friend" Manufacturing Co., Gasport, N. Y., has published a comprehensive bulletin entitled, "Friend Park Sprayers," available to street superintendents and officials in charge of park maintenance. In this well-illustrated, 16-page booklet you can learn what is required to spray those large attractive trees that mean so much to the beauty of your municipality. When there is a need of reaching high trees or where output in gallons is a prime factor, this company states that it leads the field.

Water Conditioning Questionnaire

859. If you are not satisfied with the results from your water conditioning equipment, here is an opportunity to get a careful analysis of what may be required. Graver Tank & Mfg. Co., Inc., 4809-35 Tod Ave., East Chicago, Ind., will send you a comprehensive questionnaire that they developed. This filled in, submitted together with a sample of water, will assist its engineer in analyzing your problems and making recommendations. There is no cost or obligation, the company emphasizes.

Sewer Pipe Cleaning

860. By means of illustrations the booklet, "The Flexible," published by the Flexible Sewer-Rod Equipment Co., 9059 Venice Blvd., Los Angeles,, Calif., graphically shows the thoroughness of the job this husky equipment does in cleaning out pipe lines that have become clogged through tuberculation, scale, sand, mud, and grease.

Reserve Capacities of Chlorinators

861. Reserve possibilities of chlorinators may help you in overcoming the strain placed on your treatment plants by varying conditions. If your W&T chlorinators do not have the capacity to meet increased water demand write to Wallace & Tiernan Co., Inc., Belleville, N. J. This company will give valuable assistance helping you "stretch" water purification equipment.

Control Valve Specialties

862. To help you select the proper automatic control valve equipment, Ross Valve published Catalog 41 which covers in complete detail its line of pressure regulating valves, hydraulic booster pumps, and feed water filters. Here you will find listing of model numbers, size ranges, and prices—in addition to a brief description of the workings of the various models. Write Ross Valve Mfg. Co., Inc., P. O. Box 596, Troy, N. Y.

Tank or Reservoir Control

863. B/W all-electric floatless controls make it possible for you to have more accurate control in liquids in wells, tanks, and reservoirs. B/W Controller Corp., 2200 East Maple Rd., Birmingham, Mich., will send you literature on request.

Graders, Scrapers, and Bulldozers

864. If you would like to keep abreast of equipment in the road construction and maintenance field, ask for the series of catalogs prepared by the J. D. Adams Company, Indianapolis, Ind., describing their gasoline and diesel power motor grader rollers and bulldozers. Of particular interest to municipal officials will be such handy accessories as the motor grader bulldozer No. 10 and the reversible blade snow plow and the several small scrapers.

Pipes for Water Supply or Sewerage

865. Don't drop behind the times on your information concerning pipe for water supply or sewerage. Progressive engineers and municipal officials are finding of interest developments and uses of Transite pipe manufactured by Johns-Manville, 22 East 40th St., New York 16, N. Y. For water supply data, ask for Transite Pipe Booklet TR-11A; for sewer pipe, request TR-21A.

Fire Fighting Equipment

866. If you are considering the purchase of fire fighting equipment, Ward LaFrance Truck Division, Elmira, N. Y., will supply you with information on the best way to meet your problems. Their engineering specialists are at your service. Write for data to cover your particular problem.

Street and Airport Equipment

867. Street and airport officials may secure from Connery Construction Co., 4000 No. Second St., Philadelphia, Pa., a complete catalog showing their full line of tar and asphalt heating kettles, spraying attachments, pouring pots and other equipment used for the building and maintaining of highways, streets, and airports.

Sand Expansion Gauge

868. Bulletin 335 issued by Builders-Providence, Inc., 9 Codding St., Providence, R. I., on their sand expansion gauge for use in determining the expansion of filter sand during washing.

Vol. LVIII, No. 10 The American City October, 1943

Dallas Meets a Challenge

ONCE more *The Dallas Morning News* has shown the leadership that a great newspaper can exert in advancing the civic welfare of its community. In ten issues this summer the News published a series of interpretive articles so written as to stimulate the interest of citizens in a master plan for Dallas. Topics covered included something about the ancient genesis of city planning, the steps taken and planned by other progressive cities, and some of the things Dallas needs to do to make living more efficient and comfortable for its citizens.

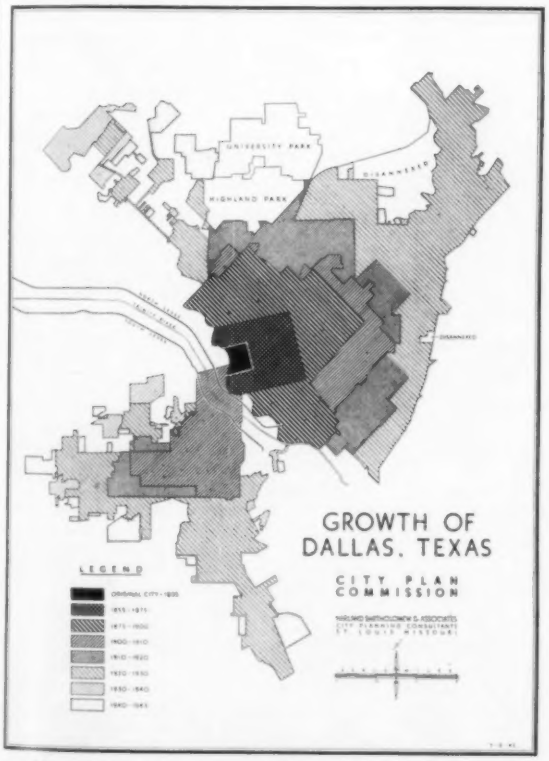
These articles have since been issued in pamphlet form under the title, "Dallas Meets a Challenge." The final article, headed "Public Support Needed," called attention to the fact that preliminary phases of the master plan were being developed rapidly by Harland Bartholomew of St. Louis, and E. A. Wood, City Plan Engineer of Dallas; and that the Park Department's Master Planner, S. Herbert Hare of Kansas City, would soon resume his work in Dallas.

Issuance of this pamphlet in August by the News was followed in September by publication by the City Plan Commisison of its Report Number One on "Character of the City" and "Scope of the City Plan." This 67-page mimeographed report is accompanied by the two maps here reproduced, and the following explanatory statement:

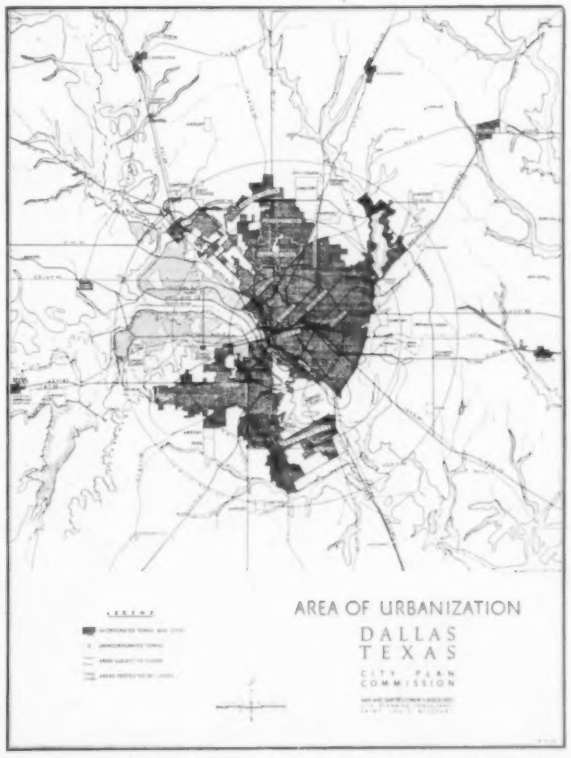
"Over the years Dallas has expanded its official city limits as new growth took place. Numerous expansions have taken place in recent years and are still occurring. The extent to which the official city has grown is shown by the accompanying Plate Number 1. In Dallas, as in other large American cities, building development has not respected official city boundaries. Here, as elsewhere, much development has been placed outside the official city limits with the deliberate purpose of avoiding municipal regulations and control. This creates a problem of the first magnitude in city planning. Most American cities are now struggling with this problem. Many of them have become hopelessly divided into such a multiplicity of conflicting governmental jurisdictions that any coordinated planning for well-balanced development will require some new over-all governmental agency with adequate power to regulate and control the development. Dallas is one of the few large cities that has expanded its municipal boundaries to such an extent that today these correspond fairly closely with the present area of urbanization. Here there is no sharp division of the urban area among numerous political governments, as will be seen by examination of Plate Number 2.

"How large an area will Dallas occupy in 1970? This must be one of the first determinations in the master plan."

New airports, a modernized street system, a park and parkway network, a municipal downtown auditorium, a new library, and rehabilitation of decayed residential areas, are major improvements urged for Dallas by The News.



The original city area of Dallas is in solid black. The progressively lighter shadings indicate the expansion of the city areas which took place respectively in the years 1855-1875, 1875-1900, 1900-1910, 1910-1920, 1920-1930, 1930-1940, 1940-1943.



The dark shaded portions of this map show incorporated cities and towns, while the lighter shading indicates areas protected by leaves from the floods to which some areas both within and beyond the city limits are subject. The circles are 2½ miles apart.

Cutting Municipal Government Costs

Which of These Economies Would Be Wise as Wartime Measures in Your City?

METHODS actually used by municipalities to reduce expenditures were described at the 1943 conference of the Municipal Finance Officers Association by A. E. Neals, City Auditor, Springfield, Mass., and H. M. Kimpel, Director of Finance, Cleveland Heights, Ohio. The methods are summarized below. Mr. Neale and Mr. Kimpel gave credit to *Public Management* magazine as the source of many of their suggestions. The listing of these methods does not imply that the speakers or MFOA endorse these methods—they must be taken for what they are worth in any municipality.

Reductions in Service

Reduce police traffic personnel and equipment because of reduced travel.
Eliminate non-essential traffic signals and reduce hours of operation of others.
Discontinue cruising by radio-equipped police patrol cars and place them at strategic locations such as fire stations, to conserve gasoline and tires and wear on cars.
Discontinue police patrol by auto in daytime except in business district.
Patrol city street lighting system on alternate nights instead of every night.
Turn over parks to the Army.
Night patrol of street lights discontinued entirely—police to report outages.
Reduce street lighting costs by reducing amperage.
Collect garbage and refuse at less frequent intervals.
Request home owners to burn as much trash as possible in ash pits or incinerators, and not to deposit litter in street gutters, enabling city to reduce street cleaning and refuse collection costs.
Discontinue collection of rubbish and leaves.
Require garbage and refuse to be placed on curb by householder.
Ask citizens to care for parking areas and street in front of their homes.
Close fire stations where possible.
Eliminate fire department rescue squad.
Lease yacht basin and airport to federal agencies.
Eliminate or reduce inspection service of various types.
Reduce recreation facilities.
Decrease poor relief expenditures.

Reducing Personnel Costs

Install modern equipment where available to enable departments to do more work with less personnel.
Assign properly qualified non-police office workers to do such work as typing, filing and record-keeping in the police department, thus releasing qualified men for more important police work.
Use auxiliary police for part-time traffic work and school janitors for part-time traffic work near school buildings, instead of regular patrolmen.
Consolidate departments where possible, thus saving in administrative costs.
Leave vacant the positions of department heads who have entered military service, their work to be carried on by their deputies or assistants.
Reduce office staffs by at least one employee in each department—offsetting where possible by increase in working hours.
Transfer seasonal employees to meet peak loads.
Exercise stricter control over sick leave with pay.
Eliminate positions of bill collectors in utility departments and handle collection of delinquent accounts by mail.
Redistribute among remaining employees work performed by those leaving to join the armed forces or to work in war industries.
Fill vacancies in some departments by transfer of employees from other departments whose activities may have been reduced by war conditions.
Loan engineering or technical employees to local defense industries and do not fill their positions.
Let out tree trimming and removal work on contract.
Make the work of fire prevention a division of the fire department, permitting a reduction in administrative expense.
Collect garbage by the city instead of private contractors.
Combine the collection of utility bills with meter reading, resulting in a saving in personnel and truck operation costs.
Establish a personnel department to effect economies in the handling of personnel—by classification of employees, institution of a pay plan, personnel records, and personnel regulations.
Install group training classes for department heads and their assistants.

Equipment Economies

Adopt a policy of interdepartmental loaning of city-owned equipment.
Install a record system for automotive equipment to effect savings in maintenance, gasoline and oil consumption and repair costs.
Keep refuse-collection trucks working in pairs so helpers are kept busy loading trucks insetad of riding with trucks to dumps and back.
Reduce amount of travel on official business.
Establish a central garage for truck maintenance, with all trucks placed in a central pool which makes it possible to reduce the total number of trucks.
Eliminate car allowance for employees who use their own cars.
Establishment of repair shops in police and fire department.
Service tractors and motor vehicles at night in order to keep equipment in use and save man hours.
Require city-owned cars to be housed in city garage at night and restrict use of cars in daytime.
Reduce cost of operating sewage treatment plants by installation of a multiple cylinder gas driven sewage pump.
Equip city garage to do repair work on all equipment rather than have some of it done outside at a higher cost.
Establish a meter repair shop in the water department.
Equip service trucks as complete units with necessary tools, etc., so that one vehicle may handle the job without having to send other vehicles to the same location.

Economies in Use of Materials and Supplies

Set up central stores of supplies such as coal, gasoline, oil, office supplies.
Standardize certain types of office supplies.
Reduce appropriations for educational supplies in the school department.
Mimeograph forms instead of printing.
Discontinue furnishing uniforms to policemen and firemen who are liable to be called for military service.
Substitute non-critical materials for critical materials in repair work.
Use ready-mixed concrete for sidewalk construction and pavement repairs to expedite the work and reduce costs.
Establish centralized purchasing to effect economies in buying.

Other Expenditure Reductions

Reduce or eliminate municipal advertising, publicity and public entertainment.
Write fire insurance on public buildings on the co-insurance basis using three or five-year, instead of one-year policies; reduce coverage on fireproof buildings; eliminate hazards which would result in reduced premiums; handle surety bonds on a competitive basis.
Eliminate useless records and simplify forms and reports to cut down paper work.
Reduce size of annual report.
Collect garbage and dry trash together instead of separately.
Arrange to dump refuse in low places on private property, thus saving manpower, gasoline, tires and equipment.
Reduce telephone expenditures by the development of standards for maximum efficient use and standards for determining adequacy of service.
Leave snow on streets except in very congested areas.
Eliminate traffic markings.
Cut meter reading cost in the water department through bi-monthly reading of meters, although rendering monthly bills based upon average monthly usage.
Feed horsemeat to zoo animals.
Eliminate or reduce landscape work in the park department.
Reduce the operating costs of administering tax title property held by the city by the adoption of a definite plan for selling such property and returning it to the tax roll.
Install improved accounting methods and an adequate budget control system.
Retire municipal debt to effect a reduction in interest costs and refinance some bonds at lower interest rates.
Make only essential repairs to public buildings.
Print only enough copies of reports to meet actual needs.
Bind only the most important municipal records.

Snow Removal Manpower Substitutes

The White, front-end shovel tackles a pile of snow, windrowed in the gutter

The tractor maneuvers easily around parking meters and other obstructions.

Load lifted, ready to be dumped into the truck

The Story of One Street Department's 20-Man, Draft-Exempt, Snow Removal Crew—or Equal

WHAT is the cardinal rule for snow removal during wartime? You can sum it up with the phrase, "Get the snow off important key streets quickly, thoroughly, economically, and with a minimum of manpower." This applies to both large cities and small, each sharing the same important responsibility. Here is the story of how a small street department handles the problem.

George Kling, Superintendent of Streets in Union Township, N. J., a suburban community located in the very heart of the East's mighty industrial center, has organized snow-removal work on a basis that makes the crews virtually draft-exempt, not liable to be enticed away to a defense plant, and able to do the work now more quickly and at a definitely lower cost.

Saves Manpower, Lowers Cost

Normally, to clear the streets of snow, Mr. Kling would have used a crew of 20 men loading a fleet of trucks, and for any reasonably self-respecting storm, he would have run up a sizeable bill. But last year, the war, while changing virtually everything else in the world, reached down into this little suburb of New York City and Newark, and took away every helper that the Street Superintendent ever had or might have hoped to get. Thus, with winter snows approaching, Mr. Kling substituted a little ingenuity for lack of manpower, purchased a White ⅝-yard front-end shovel, mounted it on a small Case tractor, and found that he had solved his snow-removal worries.

The experience of what happened during the last heavy snowfall is typical of the way the new equipment worked. This storm piled up about 5 inches of wet, heavy, hard-to-handle snow that packed down quickly and demanded immediate attention.

By using three trucks and only nine men, three of whom were truck drivers and two were operators of the loader, the Street Department succeeded in removing all the snow from the main business section in approximately 24 hours of working time. The trucks were required to travel only four ordinary city blocks in each direction, and nevertheless the loader kept them in continuous operation.

"We found it necessary to replace the operator every hour because of the difficulty in steering the tractor," says Mr. Kling. "We consider it well worth using the two operators, allowing each to work an hour and rest an hour. By doing so, they remain fresh and able to work at top speed, offsetting the additional cost we incur."

The first operation entailed in removing the snow was to plow open a roadway by blading the snow to the gutter and partially to the sidewalk. Next, the loader went to work, picking the snow first out of the gutter, and then dropping back to get the overflow on the sidewalk. The tractor had no difficulty operating over the 7-inch curb and maneuvered easily around the parking meters, hydrants, and other obstructions.

The tractor-loader combination finds use the year round. During the sum-

mer months, Mr. Kling uses it for a number of dirt-moving jobs, here again doing the work that normally would have been done by extra help.

Department Well-Equipped

Mr. Kling's maintenance garage houses an excellent assembly of other equipment. For street cleaning he has an Austin-Western street sweeper, for which his force makes its own brooms. To maintain the asphalt streets he uses a Littleford 500-gallon distributor and a Good Roads Champion aggregate spreader. For either concrete work or small patching, he uses a Rex 2-sack mixer, handling the material with a Barber-Greene loader. For this type of surfacing he can further use either a small Fordson 5-ton roller or a large Austin-Western 10-ton roller. For ordinary grading, he has available either a small light-duty hand-operated grader or a medium grader self-propelled on a larger Caterpillar grader, with power controls.

Street Maintenance

One of the latest labor-saving features that is being incorporated into this Street Department is the use of a new Buckeye stone spreader. In the past, the stone for this maintenance work has been spread by contact arranged directly with the quarry. This has not been entirely satisfactory and has resulted in a certain amount of unnecessary delay. Mr. Kling anticipates that this new spreader will save at least 25 per cent of the stone generally used in covering the bitumen. This also will result in saving approximately 15 per cent in bitumen, since the excess stone always carries away about this amount of road oil.

Saves Both Men and Material

"We have been experiencing considerable difficulty with the spreading of stone over bitumen," says Mr. Kling. "I do not exaggerate when I say that in more than 90 per cent of the cases we use an excess amount of stone because the trucks are unable to spread small enough amounts. All this excess is wasted, since it is not practicable to remove it from the road after it has been pushed to the side. We have also lost an average of more than two hours each day we have spread tar, waiting for the quarry to deliver the stone."

The Department now plans to stock the stone in its yard and use this spreader on its own trucks. Present costs are 40c per ton for delivery of the stone from the quarry and spreading on the road, with a strong chance of the price going higher next year. It would be relatively easy to haul the stone from the quarry in the Department's own trucks on rainy days or such other times that the trucks are not otherwise in use.

"By using this spreader and the automatic loaders that we have in our own yards," says Mr. Kling, "we will probably lower the cost to about half this 40-cent figure."

Mr. Kling states that he prefers tar products rather than asphalt because he feels that they give a little more resiliency to the streets that are not heavily traveled. His forces mix their own bitumen patching material on days when they cannot do other work, thereby keeping a stock on hand for an emergency.

Low Tax Rate

Union Township, an incorporated municipality suburban in character, has a population of more than 26,000 and an area close to 10 square miles. It has 117 miles of roads and streets and 30 miles of state and county maintained roads. The tax rate here has been reduced annually for the past nine years.

Municipal Stadium, Sao Paulo, Brazil

SAO PAULO'S Municipal Stadium, completed in 1940, is one of the finest in South America. The huge grandstands accommodating 80,000 are of reinforced concrete in the shape of a horseshoe. Above the east and west sides of the stadium are six towers with special lighting equipment for night games.

The topography aided construction considerably. The sides of the stadium rest on natural slopes. The north end was built on concrete foundations and has four floors containing dressing rooms, offices, rooms for doctors and masseurs, a large restaurant and kitchen, three bars, apartments for visiting athletes, a small gymnasium, and a fencing room.

The central field, designed especially for soccer football, is surrounded by an 8-lane 400-meter track. At the open end of the stadium is a reception building, adapted for open-air concerts and similar performances. Behind the building is a gymnasium, with a grandstand inside to accommodate 3,500 persons. Adjoining the gymnasium is a huge outdoor swimming pool, lighted from below the water as well as above, with a grandstand for 4,500. There are also both outdoor and indoor tennis courts.

The stadium is built over a small underground brook called "Pacaembu" (pronounced — Pah Cah em Boo) which gives the name to the new, modern residential section of Sao Paulo.

Sao Paulo's Municipal Stadium showing the swimming pool and gymnasium in the foreground.

Sacramento's Post-War Plans

Two Major Fronts: Public Works and Private Industry

By Arthur S. Dudley
Secretary-Manager, Sacramento Chamber of Commerce, Sacramento, California

WHEN mention is made of post-war planning, don't get the idea that we're talking about something that is to be done when the war is over. It is getting into action today on two major fronts. Civic projects must be ready to take care of the demand for immediate employment when post-war arrives, while industry must prepare itself for "retooling" to provide permanent employment and the resultant stability of property values and a sound business community.

Post-war planning in the Sacramento Chamber of Commerce sees a full-time paid executive serving the Post-War Planning Committee. Already, conferences have been held with city, county, state and federal executives having to do with planning practical public works projects. The curtailment of essential materials during the war and the emphasis placed upon prosecution of the war have made impossible the expansion of necessary utilities, the repair of streets, highways, and of normal governmental functions.

Cooperation with Public Officials

The longer the war lasts, the greater will be the necessity for financing building, and repairing civic projects. Our post-war planning program embraces the "indexing" of all essential features having to do with the four governmental activities in the Sacramento area. Not only are studies made by the committee as to the community needs, but the engineering departments of these four groups are urged to make their plans, their blueprints, and their specifications and to ascertain sources of revenue or financial requirements to make the projects available for immediate construction upon the close of the war. It may be necessary to have bond issues planned in order to finance the extra requirements due to long-delayed action instead of doing so from direct taxation. The Chamber of Commerce is the logical agency to aid public officials in informing the public of the necessity of the projects and the need for money with which to finance them. That's a part of the work of our Post-War Planning Committee.

Like many cities where substantial housing has been required to provide for expansion where the war has intensified employment, Sacramento finds itself with many residential subdivisions in its metropolitan area beyond the city limits. There has been no expansion of the boundaries of the city for more than 32 years. At first, some people thought they could locate their homes outside of the city limits and maintain their property at a lesser tax rate. In many instances, however, insurance rates are double those inside the city limits. Water supply has to be provided by individual wells. Septic tanks have to take care of sewage disposal. Police protection is lacking. Fire protection has demanded organization of a local fire district. Transportation has been inadequate.

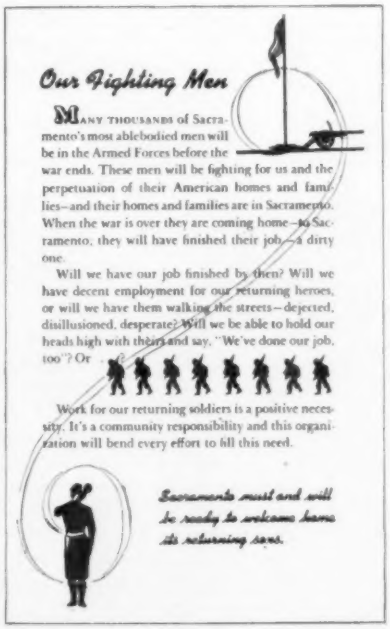
Is Annexation Desirable?

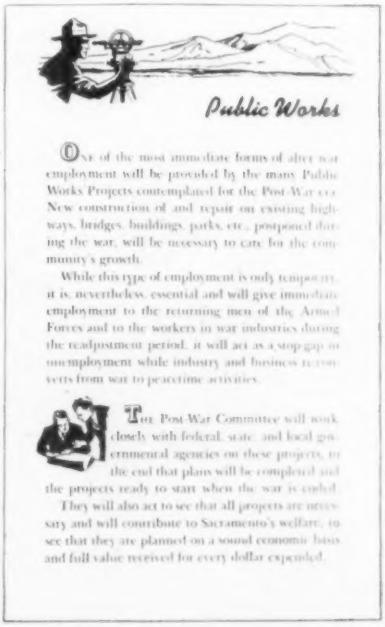
The Chamber's Post-War Planning Committee is employing an "expert" who will make a definite study of each of these districts. He will find out the basic costs of operating and financing home properties both inside and outside the city limits of Sacramento. A clear-cut presentation will be made, ascertaining whether it would be beneficial to those outside and those inside to have the entire metropolitan area incorporated within the city limits of Sacramento. This is a part of the post-war program of the Sacramento Chamber of Commerce.

There are definite projects of broad scope which come within the province of the planning work of this committee. One phase is to launch a program which will provide a vast amount of water for irrigation of farm lands in the area. Another would guarantee terminal rates and intensify Sacramento as a distribution center through an improved river channel project.

Industrial Conversion

Industrial promotion to aid existing local industries in planning for conversions and expansion when they have completed war contracts and again are available for civilian production, forms an important part of the industrial phase of our post-war planning. A service is being rendered to eastern


Our Fighting Men
MANY THOUSANDS of Sacramento's most ablebodied men will be in the Armed Forces before the war ends. These men will be fighting for us and the perpetuation of their American homes and families—and their homes and families are in Sacramento. When the war is over they are coming home—to Sacramento, they will have finished their job—a dirty one.
Will we have our job finished by then? Will we have decent employment for our returning heroes, or will we have them walking the streets—dejected, disillusioned, desperate? Will we be able to hold our heads high with them and say, "We've done our job, too"? Or
Work for our returning soldiers is a positive necessity. It's a community responsibility and this organization will bend every effort to fill this need.
Sacramento must and will be ready to welcome home its returning sons.


Public Works
ONE of the most immediate forms of after war employment will be provided by the many Public Works Projects contemplated for the Post-War era. New construction of and repair on existing highways, bridges, buildings, parks, etc., postponed during the war, will be necessary to care for the community's growth.
While this type of employment is only temporary, it is, nevertheless, essential and will give immediate employment to the returning men of the Armed Forces and to the workers in war industries during the readjustment period. it will act as a stop-gap to unemployment while industry and business reconverts from war to peacetime activities.
THE Post War Committee will work closely with federal, state, and local governmental agencies on these projects, to the end that plans will be completed and the projects ready to start when the war is ended.
They will also act to see that all projects are necessary and will contribute to Sacramento's welfare, to see that they are planned on a sound economic basis and full value received for every dollar expended.

Two pages (originals 6x9 inches) from "Preparing Sacramento for Post-War"

executives who are looking to the West Coast for a logical distribution center or a place most feasible in which to establish their particular industry.

The post-war planning staff executive is personally interviewing Sacramento's industrial, wholesale, distributor, and business executives, and ascertaining and stimulating their post-war plans and requirements.* Possessing a detailed picture of Sacramento's facilities, contacts will be made with executives in mining, lumbering, agriculture, and other large industries located in Sacramento's trade area. Their post-war requirements will be ascertained and they will be acquainted with available services obtainable in Sacramento.

A Consumer Survey is being made to learn definite post-war requirements of local civilians, business firms, industries, utilities, and governmental agencies.

Regular Committees Cooperate

The Chamber's regular committees such as agricultural, aviation, education, highway, tourist travel, industry, transportation, etc., are utilized in the Chamber's post-war planning work. There is no wasteful duplication of effort either within the Chamber or in the community. All existing agencies have a definite part to play and in most instances have selected a special sub-committee on post-war planning whose work is largely directed by the over-all post-war planning committee of the Chamber, and the work stimulated so that no avenue of effective operation is allowed to lie dormant and inactive. Each is contributing to what we feel is "job insurance" and the stabilization of business and property values in Sacramento.

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* AUTHOR'S NOTE.—A progress report has recently been submitted to the Post-War Planning Executive Committee containing data which will assist the committee and industry, in planning to re-employ our men in the services, and help provide jobs to our present workers who want to continue work after the war.

In this preliminary survey, the estimated number of employees for the after-war period indicates an *increase* of 2,151 workers over the 1940 employment figures. In 1940, the last full year of peace, we turned out more goods and services than in any other peacetime year, so it is of utmost importance that the expected employment will be greater than for that period.

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Practical Post-War Economies

A Letter from the Former President of the Borough of Manhattan

TO the Editor of THE AMERICAN CITY:

Plans are now being developed in many communities for post-war construction. But so far as I know, surprisingly little attention seems to have been paid to possible economies. It is obvious that any post-war program must be planned on a sound and economical basis if local financial resources are to be able to support it.

Why Not Joint Fire and Police Stations?

For example, here in New York City the Planning Commission is developing an immense program. I notice that it includes more than fifteen new fire houses, and a dozen new police stations—each a wholly independent building. This just perpetuates the extravagant planning of the past. There are in New York City today fire stations and police stations side by side, each a separate building, with a separate heating plant and a separate maintenance force. It is quite obvious that in many areas of the city, where both building construction and population are rapidly increasing, a new police station and a new fire house will both be needed. Why not combine these into adjoining units of a single building? The combined structure would cost far less than two separate stations. From the point of view of maintenance, it means one heating plant instead of two, one building superintendent instead of two, and many other ways of lowering annual costs.

And Branch Libraries in High Schools?

A similar economy of importance could be developed if the high school buildings were combined with local branch libraries. I am thinking of a public library, not merely a school library, and of course planned for adults as well as for children. This could be constructed in the corner of the high school building, with a separate entrance, separately staffed and entirely controlled by the library authorities. The saving would lie in the tremendous difference between the cost of a slightly enlarged school building and that of a separate structure just for library purposes. Still more, maintenance costs would be substantially reduced, with heat and supervision centralized.

This plan is logical and economical in other ways. Any high school is apt to be erected on a site centrally located within the community it serves. Branch libraries are used far more by adolescents and young people than by the older people in the neighborhood, and their accessibility to high school students is an asset. It would avoid the need for a separate school library. But the facilities for adults would be no less accessible because they are located in a part of the ground floor of the high school building. Moreover, putting the library here would help to focus other community activities in the same center.

Recreation Facilities

The school authorities might be induced to make further progress by keeping the playground and athletic facilities open afternoon and evening, available to neighborhood adults as well as to the high school students themselves. All of this would advance what I regard as a sound ideal: it would make the local high school a center of community activities. In the end, it could house the broad social and civic programs now fathered in neighborhood houses or settlements and avoid the wasteful outlay for separate structures and independent maintenance.

Other Possible Economies

New York City is planning a much needed welfare center for Harlem, and health centers in other areas. Why should not health and welfare programs be housed in separate parts of one building? Why provide separate local garages for the Department of Sanitation, for Public Works, for the trucks of the Borough President's office? Why not centralize these in one building for each locality that needs them?

No city, not even one as wealthy as New York, can possibly afford to meet increasing social needs without bankrupting the taxpayer, unless those who plan the facilities think also in terms of rigid economy. Savings such as I recommend involve neither lessened service nor lessened efficiency, but rather offer better coordination of city services at lower costs. It is too bad that those planning for the future too often repeat the mistakes of the past.

STANLEY M. ISAACS,
Member of the City Council, New York.

How Blighted Areas in Philadelphia and Boston Might Be Transformed

Rehousing for Fuller Social Life

By Marjorie Sewell
Landscape Architect
Philadelphia, Pa.

Play space in the heart of Philadelphia—"The City of Homes."

REPLACING slums and blighted areas with modern housing should provide for more wholesome social life as well as for healthier, safer, and more attractive living quarters. A survey of the physical and social conditions in a 22-acre blighted area in Philadelphia, 10 minutes walk from City Hall, revealed the problems outlined below and suggested some of the features for rebuilding illustrated in the accompanying drawings.

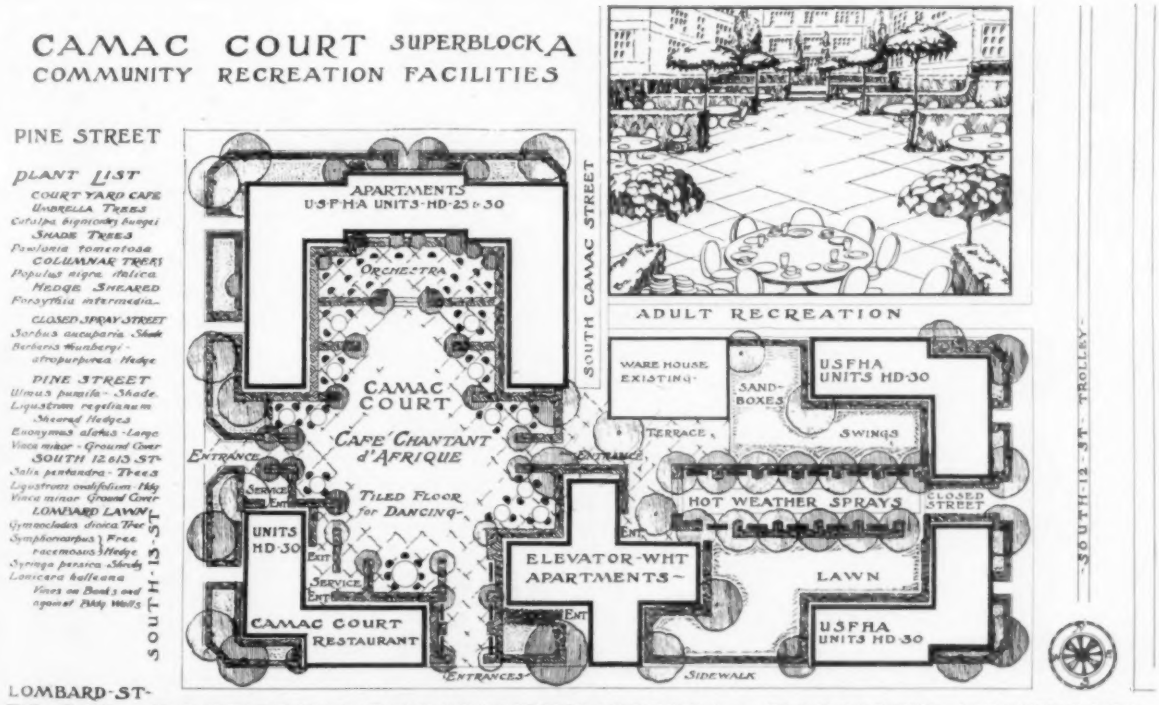
Although the district contains many quaint old houses, there is no evidence of repairs for many years. Windows are broken, paint is peeling off, cellar doors are often so rotted that a foot could be easily thrust through them.

Rats, Rubbish, and Delapidation

Streets and narrow back alleys are dirty and littered with rubbish and even dead rats. Almost every house has a sign offering rooms to rent. Back yards and courts are piled high with accumulated rubbish, which has increased through recent demolition of condemned buildings until it has become a serious fire hazard to the heart of the city.

The entire district is riddled with outhouses in all stages of delapidation, which, along with the rats, certainly menace the health of the inhabitants and create an excellent breeding place for disease and epidemics.

At present the chief pastime seems to be the corner saloon for both men and women. If it is essential as a neighborhood club, then it should be



Rebuilt with two- and three-story walk-ups and a central 10-story apartment, this superblock substitutes a restaurant and open air cafe for the former corner saloon; a wading pool, sand-boxes, and swings replace back alleys. Another replanned superblock contains a city recreation building and playground for older children. Others contain churches and a school. Penthouse on each building provide space for light and airy community laundries, where washing and ironing is interspersed with neighborly sociability. Otherwise unused roof tops can be used for drying laundry or open air terraces.

CLOSED PLAY STREET for WADING

With pavement cleaned and disinfected, this section of a former alley becomes a children's wading pool by enclosing it with 12-inch curbs. Pipe lines are laid next to the curbs and fitted with half round spray heads 20 feet apart. Overflows and drains are connected with the existing storm sewers. In winter the pool can be drained and the pavement used for roller skating.

conducted in the open like the French sidewalk cafe, where neighbors eat as well as drink and social contacts are carried on in public rather than underground or in holes in walls. Outdoor dining is practical in Philadelphia from May through September.

The location of this district adjacent to the best business section of the city, suggests that it should be inhabited by workers in downtown office buildings to the north, as well as industries to the east and south, and also houseworkers in homes to the west.

One of the strongest arguments for financing and even for subsidizing part of the project is that of public health. Any one living in this area who is employed as a houseworker or office cleaner or elevator boy in the city can easily carry not only diseases but vermin to the rest of the community, and, for self-protection, the city will some day be forced to disinfect and rehabilitate not only the inhabitants but all their dwellings and even the soil which is infected by outhouses.

At present the district is being rapidly vandalized, and is a hotbed for juvenile delinquency and adult crime. Narrow alleys and closed courts make it a fine hide-out for gangsters. In rebuilding, I would strongly advise opening all courtyards to full view for ease of policing from streets, and relocating houses so that gardens are in front and there are no back yards.

Six Superblocks Proposed

The reconstruction scheme proposes six superblocks, eliminating all narrow streets and alleys. The apartment and row houses should provide for all types and classes of families including old people and single people, broken families, and those with several wage earners. Apartments for higher income groups might help raise income to city to offset low-cost row houses. Adult recreation and the fact that old folk like to watch the passing show should be considered in planning courts and gardens, and the ideal of "privacy" avoided to offset neighborhood crime and vandalism.

EDITORIAL NOTE.—The foregoing article and the accompanying illustrations are portions of a thesis work prepared by the author on a graduate scholarship awarded by the University of Pennsylvania, resulting in her degree of Master of Fine Arts in City Planning. Acknowledgment is given by Miss Sewell to Walter H. Thomas, Registered Architect and City Planner, for directing her studies, and to Dean S. Koyl, for permission to publish.

For further information on Philadelphia's Ribbon Blighted Area see the "Curtis Bok Report," published in 1935 by the Citizens Committee.

Rehabilitation for Boston

Excerpts from a report on "Rehabilitation in Boston," submitted to the City Planning Board of Boston, Mass., by its Advisory Committee on Community Rehabilitation, Frederick H. Fay, Chairman

NEIGHBORHOOD rehabilitation would include both the recondition of buildings run down but still structurally sound, and the clearing of whole neighborhoods of homes too far gone to save, followed by the reconstruction of better buildings according to a better neighborhood plan. In such efforts many kinds of technical skill must be coordinated—real estate, financial, architectural, engineering, and, comprehensively, city planning. Also many interests and agencies are financially involved: land owners, lenders and investors, taxpayers, and the city—both as a receiver of taxes and as a provider of services and facilities.

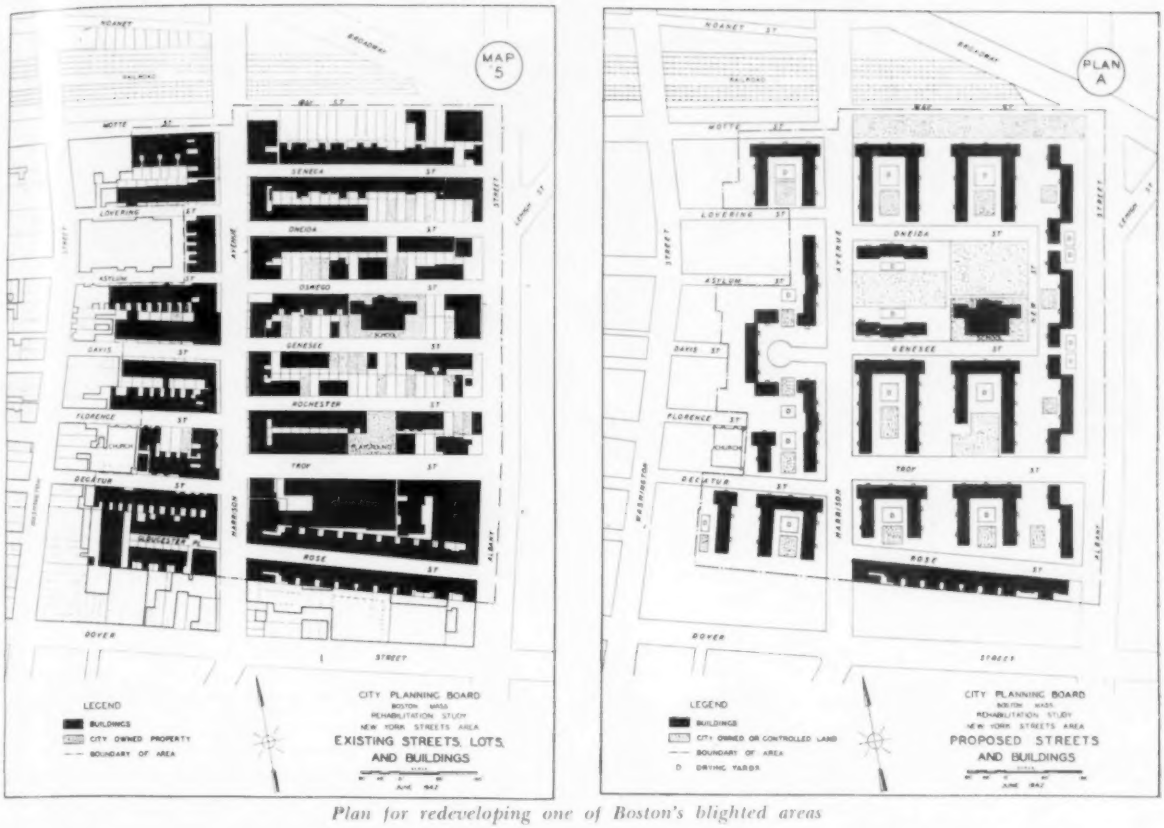
Such rehabilitation can be efficient only if it is related to the conception of the whole city area and treated as a responsibility of the city and the citizens. In short, the local effort is a part of the "Master Plan" of the city. . . .

Competition Between City and Suburbs

Since people—and capital—will flee from blighted areas, and since immediate land costs in sparsely settled areas are low, new development in the Boston region will seek the suburbs so long as the central city cannot—on the whole and taking the bad with the good—offer equal attractions. . . .

To any effort in rehabilitation large and fast enough to overcome civic decay on any important scale there must be at least three parties: (1) private capital; (2) a redevelopment organization; (3) the city. Further, only favorable conditions can be handled without a fourth party, the federal government.

Whether or not there is help or subsidy given by some federal agency to the city, to the redevelopment agency, or to both, the city must be a working partner in the project if this is to succeed. Indeed it is evident that the city, whether it desires it or not, is already deeply involved financially in the fate of all land needing rehabilitation; and that therefore, as a minimum limit, the city might well spend money in rehabilitation so long as each annual dollar spent *stops a loss* to the city of more than a dollar. Beyond this, of course, money might be properly spent *for a better city* within the limits of a comprehensive plan and budget, which plan and budget would be really a record of what the citizens and their executive mean by "a better city," and how, within their means, they intend to get it.



Plan for redeveloping one of Boston's blighted areas

Palliative Measures

First there are certain palliative measures which should be taken in any event for their own sake by the better operation of existing laws and agencies.

The full enforcement of regulations of health, safety, and use of buildings would encourage either timely repair or demolition and rebuilding.

The city-wide adoption of a policy of considering all city-held land in its possible relation to city improvement and rehabilitation before selling it to the highest bidder, would cheapen land assembly for housing and other public uses.

More could be done by bringing up-to-date the building laws and zoning laws, by improving procedure in the city's taking title to tax-delinquent land, by concentrating and relating to a comprehensive plan the city's taking, holding, and disposting of real estate.

Master Plan Needed

But all these palliative measures taken together will not accomplish rehabilitation. If the city intends not to see population, and capital, and opportunity go elsewhere and its own financial conditions slide progressively toward hopelessness, it must set up a comprehensive plan and a long-term budget, determine what place rehabilitation must hold therein to gain upon deterioration even though slowly, and then by its actual performance show to all agencies concerned that the city knows what part it can play and is willing and prepared to play it. . . .

With the end of the war, many housing projects constructed for war purposes will have to be considered, *at once*, as to what, if any, good function they can serve as parts of the future community.

Also new projects will be considered, *at once*, to make up for war neglect or even war destruction and to employ the war workers and the returning service men.

Intelligent thought on these questions is possible only *in relation to a master plan*. This master plan, therefore, we believe to be, from now on especially, a major responsibility of the planning boards of all our communities.

Halt Runaway Decentralization

POST-WAR building will inflict an era of run-away decentralization upon American cities if it follows the trend of recent building spurts. Sound building cannot be directed into a sensible urban pattern if all of it takes place on the outskirts of the community, because building at the edges with a proportionate abandonment of the established areas is simply not a sensible pattern. It is the kind of trend that destroys more in old value than it creates in new value. This means that orderly post-war building must take into account rebuilding of worn-out districts to standards of neighborhood attractiveness and livability that equal or surpass suburban counterparts. . . .

City officials should give some thought to sensible modernized building codes similar to those advocated by the National Housing Agency and the Federal Housing Administration. Minimum standards of health and safety can be maintained without requiring unnecessary construction practices.

We have been too willing to abandon our cities to dinginess and decay. Yet our established city areas remain the centers of vast urban resources and the focal points of our industry, our economy, and our cultural institutions. Let us prepare now to give them a physical setting in keeping with their high purpose and civilizing function.

HUGH POTTER,
President, Urban Land Institute.

142 Years of Water Distribution

Philadelphia Traces Water Distribution Practice in This City Since the Day When Wood Pipes Were Used, and Notes How Mains Are Jointed and Laid Today

By M. J. McLaughlin
Chief, Bureau of Water

THE Bureau of Water of the city of Philadelphia operated its first pumping stations in 1801. One pumping station was located at Center Suare, the present site of City Hall. Another pumping station was located at Chestnut Street and Schuylkill River which delivered water to the Center Square pumping station through a brick conduit.

During the past 142 years there have been many extensions and improvements to the water-works system until today it represents an investment of nearly $100,000,000.

Originally wooden pipes were used in the distribution system. An experiment was made in the use of cast iron pipe in 1801 at the Center Square engine house to determine the best method of securing tight joints under pressure. In 1804 about 4,000 feet of cast iron pipe were laid in an experiment for distribution purposes in Water Street. The first iron pipes laid similar to those now in use were imported from England in 1817. In 1820 the first large main of 20- and 22-inch diameter was placed in service. Today a 10-inch cast iron main, laid in 1822 along Chestnut Street in front of Independence Hall, is still in service. This main was exposed last year and found to be in excellent condition.

Function

The function of the Bureau of Water is the operating, extending, and maintaining of the city water-supply system and delivering the required quality and quantity of water at the proper pressures to consumers and the fire protection system.

The plant through which the Bureau of Water serves approximately 2,000,000 Philadelphians, draws its supply from the Delaware and Schuylkill Rivers with a combined watershed of approximately 9,703 square miles.

The water is treated by filtration and chlorination and distributed throughout the city. The bacteriological character of the water is in accordance with the standards as set up by the United States Treasury Department.

Outline of the Water-Works System

The Bureau of Water consists of the administrative force, nine divisions; four raw-water pumping stations; one filtered-water pumping station; seven filtered-water booster stations; five filtration plants; and approximately 2,600 miles of distribution system, including 20,000 fire hydrants and 51,000 valves; 227,000 meter accounts and 230,000 schedule accounts, making a total of 457,000 accounts.

In addition the Bureau operates the high-pressure fire system which includes two pumping stations, one basin, and approximately 65 miles of mains.

Combined with the plants of the water works and operated by the Bureau of Water are the Northeast Sewage Disposal Works; the Frankford Grit Chamber and Interceptors; the Southwest Sewage Pumping Station; and the Mingo Creek and the Southeast Pumping Stations—the latter two serving to prevent the overflow of lowland ditches in their respective areas.

The city is divided into ten districts for the distribution of the water supply. One of these districts receives a combined supply from the Upper Roxborough, Queen Lane, and Torresdale Plants. Of the remaining nine districts, two receive their supply from the Belmont Plant, one from the Queen Lane Plant, three from the Roxborough Plant, and three from the Torresdale Plant.

Pouring a 24-inch Leadite joint on Belmont Ave.

The system consists of approximately 2,600 miles of mains, 20,000 fire hydrants, and 51,000 valves. In addition there are approximately 65 miles of high-pressure mains, 1,000 high-pressure fire hydrants, and over 1,800 high-pressure valves.

The distribution maintenance division is located at 29th and Cambria Streets. There is a night shift on duty at all times to take care of emergencies. Also, the material yard is located adjacent to the maintenance headquarters.

Pressures for distribution at the higher elevations, where water cannot be supplied by gravity, are provided by pumping stations at the Belmont, Roxborough, Queen Lane, and Torresdale Plants. All water supplied through the Torresdale Filters is pumped for distribution, and this is done at the Lardner's Point Pumping Station. Booster stations are located at the Oak Lane East Park Reservoirs and in the Chestnut Hill district.

Water is supplied to the Oak Lane Reservoir from the Torresdale Filter Plant through the Lardner's Point Pumping Station. A portion of the supply goes by gravity to the area south of the reservoir, and the remainder is distributed through the Booster Pumping Station to the district served also by a high-pressure supply from Roxborough and Queen Lane Plants.

The East Park Booster Station serves the central business section of the city at times when an increased supply and higher pressures become necessary because of high draught. It is also available to furnish an emergency supply to the area west of the Schuylkill River, which is normally served by the Belmont Park.

There are three filtered water basins: East Park, George's Hill, and Oak Lane. The total capacity available for storage is approximately 900,000,000 gallons.

Experience in Pipe Jointing

Obviously the most carefully engineered water-treatment plant loses its effectiveness if it is forced to deliver water to a faulty distribution system. Again, obviously a well-designed distribution system drops in value if the

ABOVE: *making joints in the 16-inch cast iron line paralleling Ridge Avenue.*

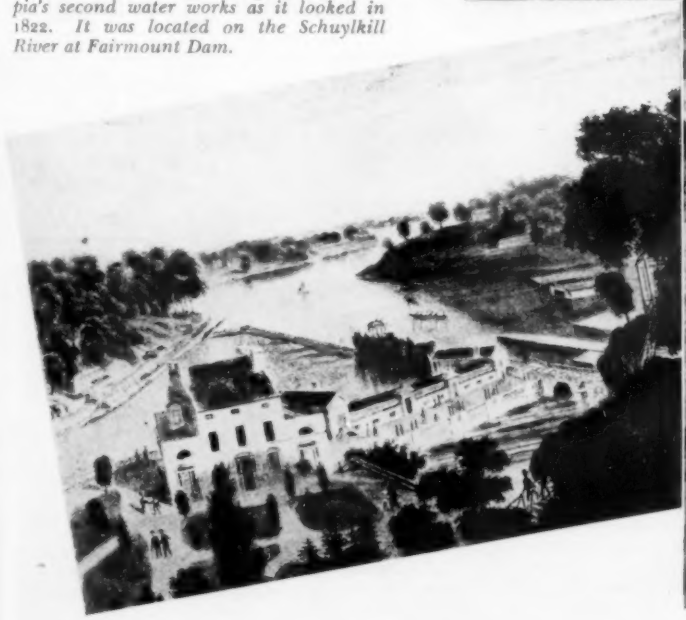
ABOVE CENTER: *A close-up of Leadite joints in 48-inch line to the Belmont filter.*

ABOVE RIGHT: *This 12-inch cast iron main runs in front of Philadelphia's General Hospital and Convention Hall.*

RIGHT: *Bureau of Water officials, U. S. Pipe & Foundry Co., and The Leadite Co. representatives inspecting 16-inch cast iron express main to northeast Philadelphia with Leadite joints. Left to right they are: John M. Diven, Chief Engineer, The Leadite Co.; Joseph E. Gill, Principal Assistant Engineer, Bureau of Water; S. H. Thompson, Deputy Chief, Bureau of Water; H. E. Richards, Philadelphia Sales Manager, and L. H. Nelson, Eastern Sales Manager, both of the U. S. Pipe & Foundry Co.; M. and J. B. McHugh, Philadelphia, were the contractors.*

LOWER RIGHT: *this 10-inch cast iron main has been in service for the past 122 years. Laid in 1821 it is located at 2nd and Chestnut Streets.*

LOWER LEFT: *A drawing of Philadelphia's second water works as it looked in 1822. It was located on the Schuylkill River at Fairmount Dam.*



joints in the mains are not and will not remain permanently watertight. We in Philadelphia who have faced serious restrictions on water supply and who during the past few years have made exhaustive studies of water leakage, have had this driven home with unmistakable clarity.

Non-Caulked Joint

For this reason, after more than 20 years of experience with the non-caulking, sulphur-base type of joint for cast iron pipe known to water-works men as Leadite, we find that it meets our very particular and exacting specification in every way. We specify it on all joints of cast iron pipe with a diameter of 4 to 30 inches inclusive, with working pressures exceeding 100 pounds per square inch. The Bureau has successfully used this type of material for making joints on pipe as large as 48 to 60 inches in diameter.

Altogether there are over 2,800,000 linear feet of cast iron water mains laid with these joints of various diameters in this area. Most are under paved streets and, consequently, must take heavy traffic loads with the accompanying destructive ground vibrations. This footage represents over 500 miles of pipe placed by contract and city forces.

The continuous use of Leadite by the city is an indication of its efficiency and complete satisfaction to the officials and the engineers in charge.

We have sound reasons for our preference. It reduces the time required to lay pipe, saves labor by eliminating large bell holes and the caulking of joints, and cuts waste and loss of water by decreasing leakage at the joints.

Leakage Precautions

Experience indicates that joints made with Leadite can be made watertight with proper care. To obtain the best results, the Bureau in its specifications calls for the extra precaution of removing the protective coating from the outside of the spigot and the inside of the bell of the pipe.

Our experience has been that leakage through Leadite joints decreases with age and the joints become very tight.

When new inspectors are assigned to work where these joints are to be used, we always instruct them thoroughly in the proper handling, melting, and pouring methods that should be followed — thereby insuring the making of successful joints.

We have also found that pipe laid and jointed during the hot summer weather should be tested and backfilled as soon as possible. Pipe that lies in an open trench for any length of time in the summer is subjected to severe expansion and contraction, and this irrestible force causes the pipe to "creep" due to the heat of the hot sun, with the result that this continuous and abnormal movement of the pipe obviously retards and delays the tightening or "take up" of the joints.

By testing and backfilling promptly, the number of leaks or defective joints can be decreased and leakage reduced to a minimum.

City Finances: 1942

IN 1942 the ninety-two cities with populations of 100,000 or over, collected three-fourths (75.3 per cent) of their revenue in taxes of various kinds, obtained 18.0 per cent from federal and state aid, and the remaining 6.7 per cent from service charges, special assesments, public service enterprises, fine, interest, etc., according to the Census Bureau's 'Summary of Finances of City Governments in 1942."

The property tax is still the mainstay of the cities, producing 64.7 per cent of the cities' revenues. There is no breakdown between the real estate and personal property tax collections. In 1938, however, personal property tax collections amounted to a little over 6 per cent of general property tax collections.

Sales, business, and other local taxes produced 7.5 per cent of total revenues in 1942, while licenses and permits accounted for 3.1 per cent of the total.

The ninety-two cities expended over $2,000,000,000 during the year. Of the total expenditures about 76 per cent was for operating costs, 18 per cent for debt service, and 6 per cent for capital outlays.

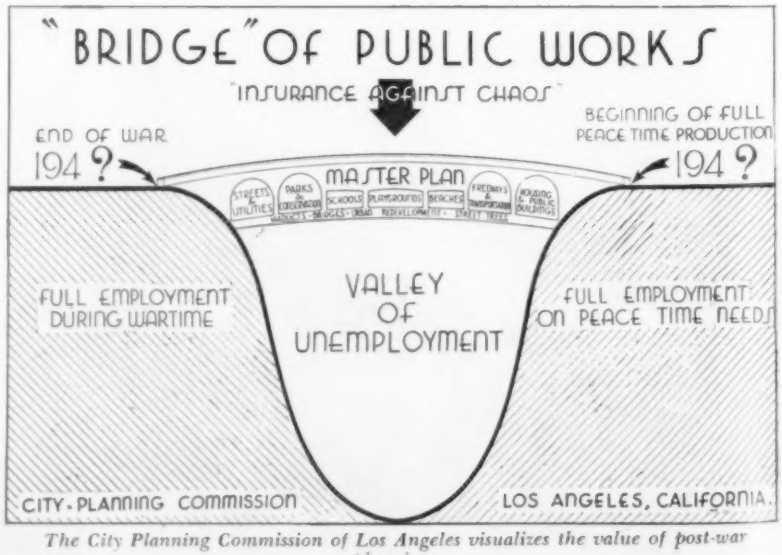
The net long-term debt of these cities amounted to $5,805,933,000, or about $153 per capita in 1942. About one-half of this had been incurred for general governmental purposes, the remainder being for public service enterprises.

The municipally owned public service enterprises of the 92 cities showed operating revenues and expenses for the year as follows:

City and Type of Enterprise	Operating Revenue	Operating Expense	Debt Service
Water supply systems	$207,724,000	$ 78,872,000	$ 86,558,000
Electric light and power systems	82,709,000	37,626,000	17,513,000
Transit systems	168,218,000	135,655,000	65,078,000
Gas-supply systems	21,013,000	13,742,000	2,504,000
Port facilities	13,073,000	5,375,000	18,340,000
Airports	2,561,000	2,631,000	5,041,000
Other	8,752,000	5,195,000	3,967,000
City total	$504,050,000	$279,096,000	$199,661,000

The total population of the 92 cities in 1940 was 37,987,989. Their land area was 4,383.9 square miles, an average population of 8,665.3 per square mile.

"Insurance Against Chaos"



The City Planning Commission of Los Angeles visualizes the value of post-war planning.

Centralized Municipal Accounting in Wartime

By Perry Rodman
City Comptroller
Bridgeport, Conn.

IF the economies of Bridgeport's centralized accounting through the use of tabulating machines had ever needed a checkup, the conditions due to the war have furnished it—and how.

The city of Bridgeport, Conn., has a normal population of 149,000. Due to war conditions, this population has now increased to some 215,000 or 220,000 people, for Bridgeport still lives up to its name gained in World War I: "The American Essen."

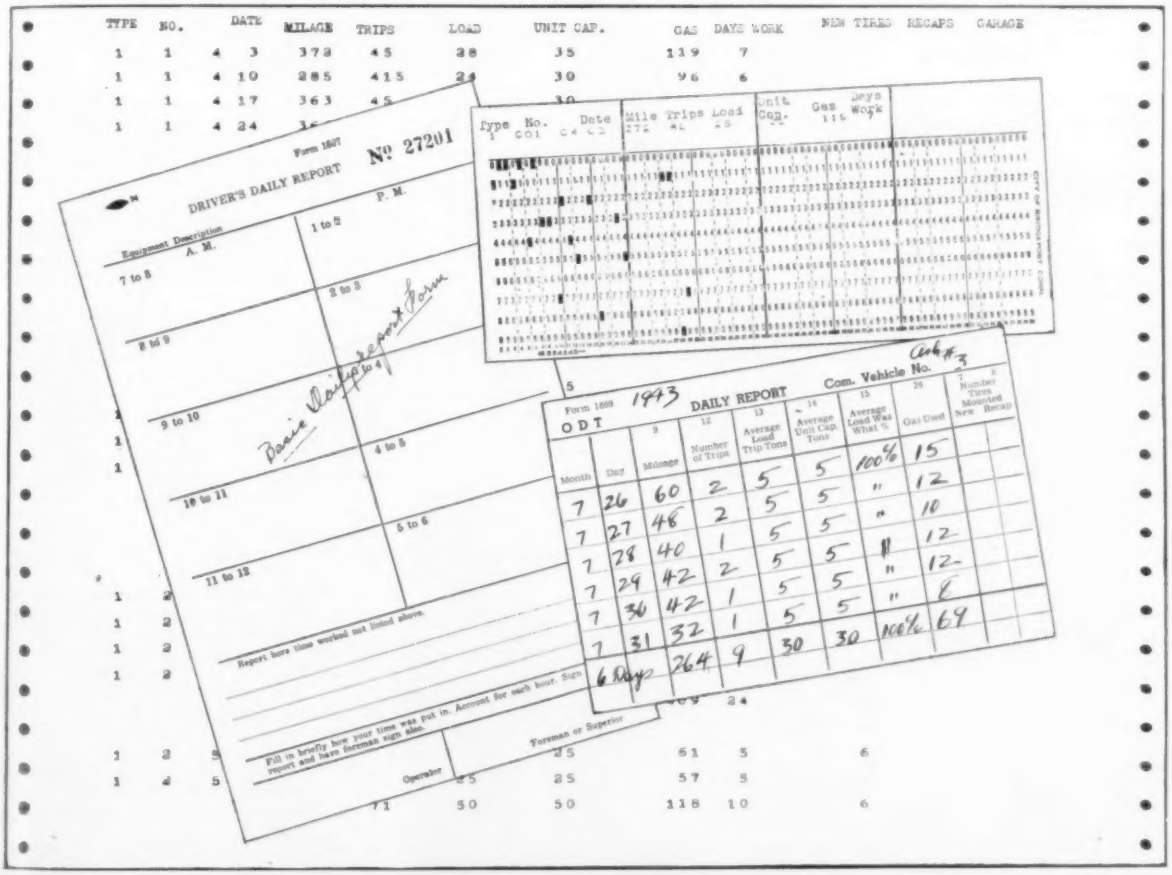
How is it possible to handle the peculiar demands made by present conditions and requirements, which seemingly are being "cooked up" in wholesale batches by the Federal Government? What is the impingement of government regulations and requirements on municipal finance set-up?

First of all, we have the old bugaboo of manpower. Bridgeport cannot meet salary standards set by private industry. We could, if all the taxes of the city were paid by big manufacturers, for then we could say: "Well, you raised the wages yourself, even if under compulsion; the city has been obliged to do likewise: therefore, you will have to pay the increased tax rate." However, the fact is, the greater proportion of taxes in a city such as Bridgeport, are paid by the small home-owners.

It was because of the difficulty of securing and paying competent manpower that, even before the war, Bridgeport installed tabulating machinery; *this, plus the fact that it was my personal conviction that tabulating equipment would provide the backbone for future accounting procedures of all kinds.*

Cutting Clerical Time

One of 43 separate and distinct jobs done by our tabulating equipment is that of compiling the periodic reports for the Office of Defense Transportation. I imagine that all officials of eastern municipalities had the headache of filling out the basic information cards on their equipment and the use this equipment was put to. Then came the necessity of reporting the actual operation of this equipment. Because we have controlled central garage operation in Bridgeport, we were partially prepared for these re-



GARAGE REPORT FOR ODT: *The Daily Report form is prepared by individual truck drivers and turned in to the garage weekly. Accumulated cards are sent to the tabulating depariment monthly from garage. Tabulating cards are punched monthly from Daily Reports. One tabulating card is punched for each item on Daily Report. The tabulated garage report is prepared quarterly from the tabulating cards accumulated for that quarter.*

quirements, but nowhere near 100 per cent prepared.

Reporting to ODT requires an analysis of mileage, trips, and loads carried, unit capacity, gasoline used, days worked, new tires, re-cap, and garage. We have approximately 150 pieces of equipment which require the use of gasoline or oil in one form or another and for varied purposes. It can be seen, therefore, that when a large proportion of this equipment is in use at one time, particularly as it is at this season of the year, the analysis and compilation of these figures is an arduous task if done manually. Our equipment includes such varied items as ash and garbage, trucks, ambulances, sweepers, other trucks, and tree sprayers.

We adapted our daily truck reports so that specific information as to equipment operation came from the field itself, making it reasonably certain that it was accurate to begin with. Naturally, because these men are not trained to do such things, these reports are in a very simple form and mostly in pencil. The control of gasoline used is checked through the individual reports for gasoline supplied to each piece of equipment. This is kept accurately at the garage. Therefore, the rough information as to equipment, its use, and consumption of fuel, tires, and repairs is compiled daily and this compilation is then analyzed in the particular form required, set up on punched cards, and the final tabulation run through in such form that it fits in with the report requirements of ODT. I do not want to take too much time elaborating the details here, but I believe that THE AMERICAN CITY would be willing to have those interested write, or you may write to me, and I will be happy to supply whatever detail is required.

Another example of the use of tabulating equipment in wartime Bridgeport is in our civilian-defense set-up. Complete records and analyses are kept of all the people engaged in the civilian-defense endeavor in this city, close to ten thousand individuals. Our tabulating equipment has given us their names, occupations, addresses, telephone numbers, when available, how available, and particular activities in which they could be used.

An offshoot of the above application is a job that we are working on now—the enumeration and analysis of teen-aged youngsters for recreational and personal-use purposes. A form was set up which tabulated the youngsters' names, addresses, school attended, church affiliation, recreational organization or other affiliations, and what he would like to do, attend, or join. This form has been coded, and members of the civilian-defense organization acting as volunteers, are marking this information in code on mark-sensing cards. These cards are automatically interpreted through our I.B.M. interpreter machine when they become the punched-cards from which this information can be compiled and analyzed.

Without the efficient application of tabulating equipment, we would be lost. The largest and one of the most elaborate jobs that we handle is the accounting for the real estate and general-property taxes, comprising 56,000 items of varying complexity; the smallest job is the analysis of departmental absences. The most elaborate (and complex) job is welfare accounting—although in these days, thank goodness, it is down to an absolute minimum—and there may it stay!

"Money Spent in the Wrong Direction"

IN 1937 the city of Eureka, Calif., aided by the Public Works Administration, built the handsome municipal auditorium here shown. Last month THE AMERICAN CITY wrote to Mayor H. R. Simmonds suggesting that, if the building had proved to be a valuable community asset, our readers would be interested in a brief article describing the structure and the uses to which it is being put.

Although municipal auditoriums have been wise investments of public funds in many cities, Mayor Simmonds' reply expresses serious doubt as to their practicability in town as small as Eureka (17,000 in 1940). His letter indicates also the great importance of relating municipal improvements to a well-considered city plan; and he would agree, no doubt, that in many cases, school auditoriums or other public meeting places can serve as economical substitutes for separate auditorium buildings.

Mayor Simmonds' Letter

To the Editor of THE AMERICAN CITY:

Just at present, our municipal auditorium is being used principally for the war effort through state guard, occasional dances, and roller skating. It is my opinion that an auditorium such as ours, costing approximately $165,000, is money spent in the wrong direction. It is one of the manifestations of the lack of vision and financial experience on the part of many municipal officials that this city and many, many others are guilty of. So much so that I have taken upon myself to suggest through our congressman an endeavor to create a bureau of municipal education, not so much to invite the national government to supervise municipal affairs but rather a guiding post in the many intricate problems affecting taxation, bonds, etc., in municipal operations.

While I full realize that many municipal officials are opposed to bureaucracy, one must recall that bureaucracy is a means to an end—the end being the preservation and the perfecting of the democratic process of government.

I am sorry I cannot be an enthusiast over municipal auditoriums in towns of this size, and it would perhaps be better on your part to warn the various municipalities to be careful of their expenditures in this direction. Sometimes an objective is easily consummated by the enthusiast proposing a civic auditorium and many other civic projects and the votes for such projects are usually representative of minority rather than majority groups. Most bond issues can be classed in this category as virtual negations of the democratic process.

With the democratic process of government now in grave danger, it would behoove a publication of your type to devote its pages not to accepted theories of government, but to a more scientifical discussion of the principles for which democracy stands; as it is only through organs of your type can we generate new thoughts in determining the problems that are now so severe that they are threatening democracy all over the world. This might sound a bit pessimistic, but I give it to you for what it is worth. I hope you receive better replies regarding the success of municipal auditoriums elsewhere.

H. R. SIMMONDS,
Mayor.

Eureka, Calif., September 15, 1943.

Eureka's Municipal Auditorium

Incineration—The City's Housekeeper

A City Manager Speaks His Mind on the Subject of Refuse Disposal

By R. W. Rink
City Manager
Coronado, Calif.

CORONADO, CALIFORNIA, is thanking its lucky stars for the foresight of city officials who constructed a municipal incinerator two years ago, thereby avoiding the difficulties neighboring communities have experienced in the control of fires on dumping grounds during dimout regulations.

Coronado, like other cities, has witnessed many a debate by local soap box orators on the subject of The Incinerator versus The Open Dump. When the argument is decided on the basis of dollars and cents, the "open dump boys" win hands down because there never was a cheaper way of disposing of refuse. But money is not always the important factor; Chic Sales are cheaper than modern bath rooms, sewer systems, and treatment plants, but they aren't used or permitted in self-respecting cities.

Solving the Problem

Our problem was one that almost solved itself. Coronado, two square miles in area and surrounded on all sides by water, would be an island if it were not for a narrow sand strip that connects it with the mainland. With such a small restricted area, a city has to live a balanced aquarium type of existence or else haul its rubbish out of the city and park it on someone else's back yard. This method doesn't generally promote intercommunity goodwill and the cost of hauling will often pay for an incinerator over a period of years. So, Coronado built an incinerator.

It is of the steel water-jacket welded construction type, with mechanically operated charging doors and grates. Refuse is dumped through a 4 by 8-foot charging door onto suspended drying grates, under which are the burning grates. The burned material is dumped through a hopper into the ash bucket, which dumps into the truck that hauls the material to a filling area 500 feet away. All doors and grates are hydraulically operated by a 5 hp electric motor and pump.

Water for Oil in Hydraulic Controls

Until recently, hoist oil was used as the liquid in the system, but occasionally a packing gland would leak and squirt oil on a hot surface resulting in a fire. After repairing the damage caused by a few such fires, the city mechanic popped the question, "Why not run the rig with water?" So now it runs with water plus a small amount of oil for lubrication and sal soda for emulsification. The saving on the hoist oil alone is considerable.

The unit, designed by F. O. DeCarie and constructed by Charles W. Pettifer of Long Beach, Calif., will handle 18 tons of mixed rubbish and garbage in an 8-hour period without the use of fuel of any kind. A 75-foot steel stack partially lined with brick provides the necessary draft. At the present, garbage is hauled out of the city on a separate contract.

By using a truck fitted with a small bulldozer blade for charging the unit, only one man is needed to operate the plant. We had a little difficulty at first with operators who became so engrossed in treasure hunting and salvage that they neglected the incinerator. This has been remedied by contracting for the labor and permitting the salvage of any type of material by the contractor.

Costs

Total cost of the unit, including the reinforced concrete building, was $16,000. Cost per ton for disposal, including depreciation and amortization, is $.95. For a city of 11,000 persons this is not too much to pay for the elimination of an unsightly dump with its smoke, filth, and rats.

ABOVE: *a truck discharges a load of refuse onto the open-air charging floor.* BELOW: *showing the truck with the bulldozer blade which pushes the refuse into the incinerator.*

A view of the Denver laboratory and the specimens that are being cured under such careful control.

Concrete Test Specimens Take the "Cure"

Temperature and Humidity Are Held to Close Tolerances in Denver's Laboratory Curing Room

By Alfonso Cavarra
Materials Engineer
City and County of Denver

TAKING the "cure" is always serious business. This is true both for those trying to climb "on the wagon" and for a concrete test specimen. If the test on the concrete is going to mean anything, the curing has to be consistent and under absolute control. All specimens must develop their strength under identical degrees of temperature and humidity if the test is to accurately measure differences between the various proportions used or methods of mixing.

Tests All Concrete

It is the responsibility of the Materials Laboratory for the city of Denver to test the durability and strength of all concrete going into the construction of dams, highways, buildings, and sidewalks in both the city and the county. To be sure that the curing of these specimens never deviates from certain fixed tolerances, we have constructed a curing room equipped with Carrier air conditioning equipment that controls both the temperature and humidity. We have had this in operation for nine years now and can say confidently that curing no longer is a factor in measuring the strength differences of the various specimens.

Storage Room

This storage room is approximately 14 by 18 feet. The inside walls are lined with two inches of cork having a mastic finish. The reinforced concrete roof is insulated on the outside with five inches of cork and covered with roofing paper. The door is two and one-half inches thick, made of sheet copper and filled with granulated cork. The inside walls are painted with special aluminum paint. All metal in the room is either brass or copper. All electrical conduits and light fixtures are moisture-proof.

Temperature Control

When the temperature in the curing room rises above 72°F., the Carrier refrigerating unit pumps a refrigerant through the air conditioning coils, thus cooling the air current as it circulates in the room. When the minimum temperature (68°F.) has been reached, the refrigerating unit automatically turns off and heaters turn on, warming the air circulating in the room. This cycle of alternate heating and cooling may be continuous; however, it has been found that in the warm summer weather the heaters can be dormant, and similarly the refrigerating unit can be switched off in cool weather. The humidity is maintained by atomizing water continuously through a small nozzle, thus creating a dense fog. The blower which circulates the warmed or cooled air and also diffuses the water vapor operates continuously.

Diesel Engine Operating Tips

IF YOU are operating a diesel engine-generator plant, your wartime obligation is to get all the kilowatts out of the fuel that you can, and *all the time*. You cannot afford to tolerate anything but top-notch efficiency.

Glen Yarger, superintendent at the Osage, Iowa, Municipal Electric Plant, has found that the condition of the intake and exhaust valve seats plays an important part in engine efficiency. He keeps these seats true by reseating and refacing, and never allows them to become grooved either by normal use or ordinary grinding.

A majority of the smaller plants, which make up no small per cent of the total installed diesel horsepower, have no way of truing up the seats on their valves. He has succesfully used a lathe with a tool post grinder. In most cases a bench lathe will do.

"Don't be neglectful about checking the spray valves," he warns. "The fuel we get now is not as clean as that which we were getting a year or two ago. Clean the spray valves more often and be sure the holes in the tips are open."

During the past year Mr. Yarger operated the three diesels in his plant to produce the remarkably high figure of 13.4 kilowatts per gallon of fuel, and was able to average 7,340 hphrs per gallon of lubricating oil. The plant has just put $20,000 of its first year's earnings into war bonds.

By William H. Gottlieb

Diesels on Main Street

The municipal electric plant serving Cumberland, Wis., occupies a central place in this community of 1,300 people. With three years' operation to its credit, officials estimate that it saves each person approximately $5.00 per year over rates in existence prior to its construction. The plant is managed by a Utilities Commission elected by the Common Council.

THERE was a time when power plants were relegated to the back streets on the outskirts of town to protect the sensitive citizens against the unseemly sights and sounds of industry. Today a small, modern city like Cumberland, Wis., puts its municipal electric plant on Main Street as a civic center to improve the appearance of the heart of the community. Since its installation in 1939, the plant has earned its place of honor by giving quiet, unobtrusive service and by saving the city $7,500 a year.

How It Began

Cumberland, a community of 1,500 population, has owned its own electric system since 1905 when a small, municipal steam plant supplied the town with power from sundown to 10 p.m. each day. In 1919 the inadequate steam engine was abandoned, and for 20 years the city purchased electricity from a private utility at wholesale rates. In 1938 the rate per kilowatt-hour was raised to 1.65 cents, and a public referendum showed that Cumberland preferred to produce its own power rather than pay the increased cost. Implementing public will, the city put two 450-hp Buckeye diesels into operation in October 1939.

The plant made money for Cumberland from the first revolution of the flywheel. In 1941, a typical year, the total cost of generating power—including labor, fuel, lubricating oil, insurance, supplies and miscellaneous expenses—was $12,958.82. With 1,531,800 kwhrs produced in this year, the unit cost was 8.6 mills. Even including full depreciation on building and equipment, the city saved 5.5 mills under the cost of purchased power.

Records to Shoot at

Cumberland's record of economy and profit can have only one source: diesel efficiency. It will be seen that in the year ending May 30, 1942, the plant produced 1,629,300 kwhrs and consumed 153,206 gallons of fuel for an average of 10.63 kwhrs per gallon. With an operating engine load factor that averages only 55 per cent and drops as low as 16 per cent, this fuel consumption is more than satisfactory. Lubricating oil consumption was 815.4 gallons in 8,811 engine hours of operation, or a record of 4,862 rated horsepower hours per gallon of lube. For the light summer load one engine is sufficient, but in the winter months both units are needed to carry the peaks which have gone as high as 610 kw. The operators try never to run two units when one is capable of doing the job without overloading.

Contented Diesels

The diesels are identical, six-cylinder, 4-cycle, each unit developing its rated 450 hp at 360 rpm. Each engine drives directly a 300 kw, 2300-volt, Electric Machinery generator with 7.5 kw, 125-volt, V-belted exciter.

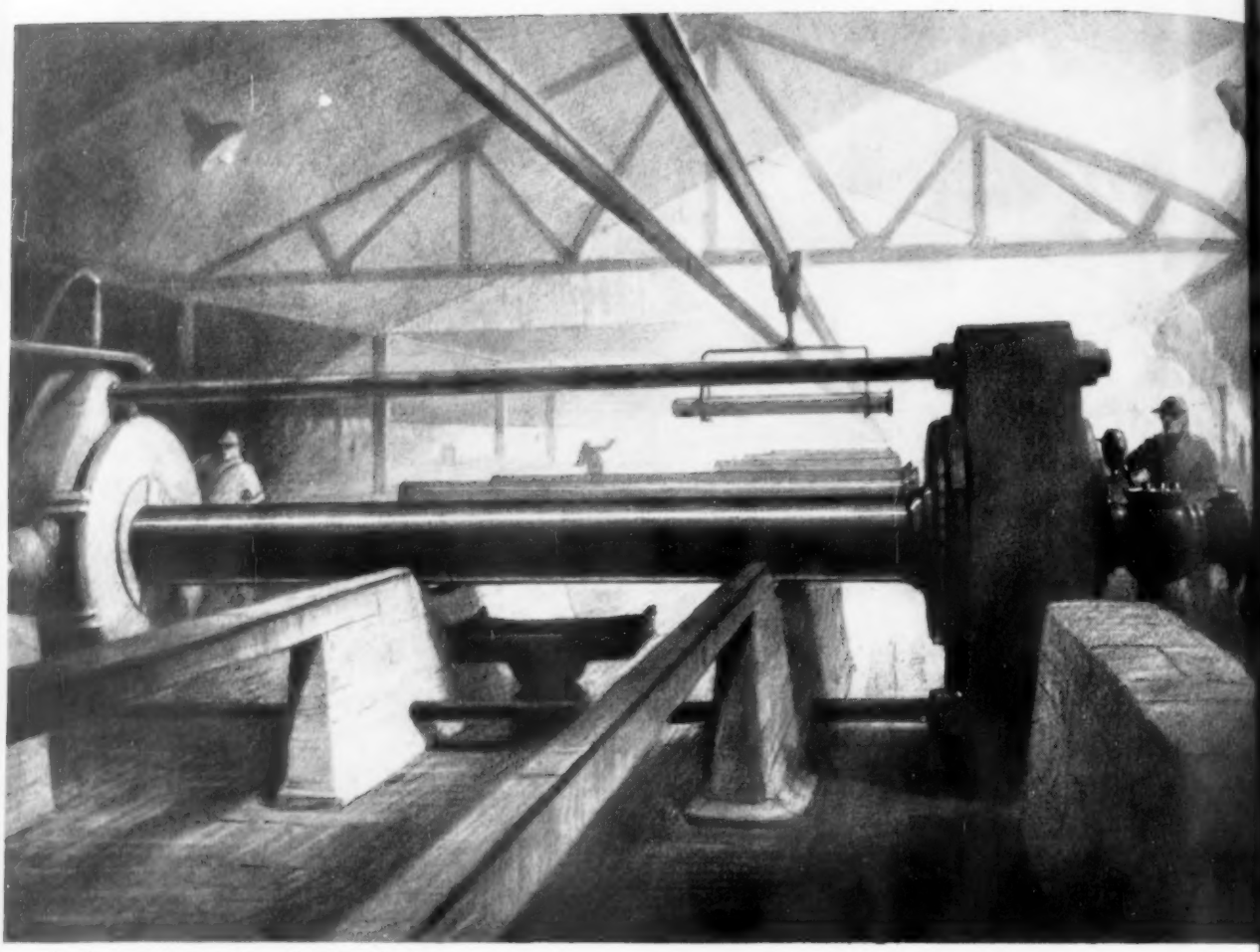
These two units have supplied Cumberland's needs for nearly three years without an interruption of service, although the peak load is steadily rising toward rated capacity. Fortunately, the plant was designed for heavy-duty, continuous operation. Every reasonable precaution is taken to keep the engines in top condition. The operating schedule calls for alternate, two-week runs by each engine, with the second unit helping with the peaks when necessary. Lubricating oil is supplied under pressure to both bearings and cylinders by a circulation system which includes an engine-driven pump and a shell-and-tube oil cooler. At the end of each 336-hour run, the oil is drained from the system and put through a Renuoil activated clay purifier.

Every March pistons are pulled for inspection, cylinder wear and crankshaft alignment are checked, and valves ground. The operators report that wear is slight and that they have never found a stuck ring. Every month they check bearings, pins, nozzles, and valve clearances. There have been no breakdowns and no repairs.

Cooling Water System

The cooling water system is of the closed variety, and only soft water enters the engine jackets. A pair of motor-driven centrifugal pumps, rated at 200 gpm each against a 40-ft. head, draw water from a hot well and put it through the engines and the coils of a Marley atmospheric-type cooling tower. A pair of identical pumps take raw water from the cooling tower sump and pump it over the tower. One pump is sufficient for each circuit, and the second serves as a standby. For jacket makeup, city water is put through a Permutit zeolite softener, while unsoftened city water is used as makeup for the raw supply. A pressure switch on each pump sounds an alarm if the pump fails. As an added precaution, there is a high water temperature alarm for each engine. To complete the alarm setup, a warning

Final Assurance



The Hydrostatic Test, drawn by Hugh Ferriss.

The final test of the cast iron pipe you buy from us–one of a long series of quality controls –is the Hydrostatic Test. Every full length of pipe–whether for water, gas, sewerage or industrial service – is subjected to a hydrostatic pressure test before shipment. The test pressure used is at least twice the rated working pressure. The storage yards of our several plants are amply stocked with U. S. Super-de Lavaud centrifugally cast pipe ready for immediate shipment.

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Down the aisle between the diesels is the well-equipped Consolidated Electric switchboard.

sounds if lube pressure drops below a predetermined point and also if fuel level drops too low in the engine supply tanks.

Extra Duty Jacket Water

The jacket water performs an additional service by keeping the fuel warm. The water circulates continuously through heating coils in the two 17,000 gallon underground storage tanks. A small motor-driven gear pump transfers fuel from storage through filters and meters to two 150 gallon day tanks in the plant basement. The engines' own plunger pumps take fuel from the day tanks and supply it to the individual injection pump for each cylinder. If the plunger pump should fail, an automatic control switches on a motor-driven rotary pump, so that the engine is assured a continuous supply of fuel. Each engine is equipped with a relay-type Woodward governor which regulates the quantity of fuel injected to meet variations of load.

Beating Old Man Winter

Burgess impingement-type air filters are outside the plant. Up in this country you know what they mean when they speak about winter. Consequently the operators have devised a wooden housing to keep the filters from becoming clogged with snow. During these cold seasons, there is need for plenty of heat in the plant, and it was decided to use exhaust gases for this purpose. The exhaust from both engines enters a common header and passes down through a waste heat boiler, providing 15 pounds of steam for plant heating. The system is arranged so that the operator can regulate the amount of gas entering the boiler, sending the rest out directly to the vertical snubbers at the rear of the plant.

The 8-panel Consolidated Electric switchboard is particularly well equipped with General Electric meters. These include a recording watt-meter, recording volt meter, nine totalizing kilowatt-hour meters, time overcurrent relays, two rocking-contact voltage regulators, synchroscope, and oil circuit breakers. There is an 18-point Alnor exhaust pyrometer which serves both engines and will be sufficient for a third unit. Also on the board are motor-controls for all the water pumps and a set of lights that shows the seat of trouble when an alarm sounds.

Management and Rates

Both the generating plant and distribution system are operated under the supervision of a five-man Utilities Commission elected by the Common Council. Present members of the Commissions are: J. M. Nelson (president), Henry Rose, W. G. Talbot, Malvin Lerdall, and H. R. Hines. The plant operating personnel includes Alfred Neurer, head operator, two other operators, and a relief man.

The city charges a 40 cent fixed charge, 4 cents per kwhr for the first 30, 3 cents per kwhr for the next 170 and 2.5 cents for current above 200 kwhrs.

The plant was designed and built by G. L. Van Fleet, constructing engineer.

Making the Most of Wartime Volunteer Service

"HOMES Use—Volunteer Service in War Housing Centers" is the title of NHA Memorandum No. 30-28, prepared by Philip M. Klutznick, Assistant Administrator of the National Housing Agency, and Florence D. Stewart, Chief Community Participation Adviser, NHA Homes Use Service.

The memorandum is important not only as a guide to the types of work that volunteers may be asked to do in War Housing Centers, but it also embodies practical suggestions for any agency, federal or local, using volunteers in wartime services. For example:

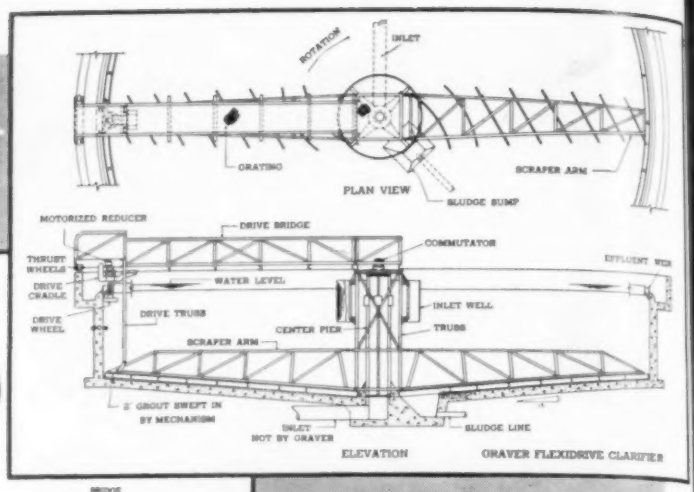
"Volunteers should not be recruited unless there are specific jobs for them to do, nor unless the necessary time and energy can be devoted to training and working with them. Nothing more speedily destroys the enthusiasm of workers than a half-hearted acceptance of their services, desultory contacts with them, and a tendency to give them only 'odd jobs' to do. A program that starts with a great flourish and then melts away because of lack of real interest on the part of those in charge will have a bad effect on the relations of the War Housing Center with the public. On the other hand, when managers understand the scope and value, as well as the limitations, of volunteer service and make the right use of it, a great deal is to be gained. One of the most effective ways of obtaining support for a program is to induce people to work for it. They learn to understand it and to appreciate its importance.

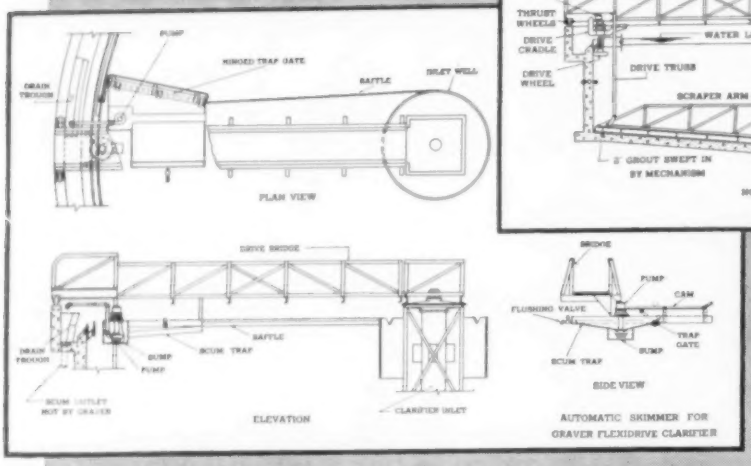
"Each War Housing Center will have problems peculiar to itself, and the manager is advised to prepare a description of each type of job for which he proposes to use volunteers. Job descriptions clarify the spheres of service within which volunteers may fit; of determining the number and types of volunteers needed and training they should have. It shows where volunteers can and cannot be used, and assures an adequate volunteer training program. . . .

"A proper appreciation of the volunteers' services should be shown, not only from day to day within the group, but also at public meetings and in newspaper releases. Where the number is not too great, their names may be listed, or those giving outstanding service be specially noted. . . .

"If volunteers are expected to conduct themselves as professional persons and, as far as possible, are treated on a par with the paid staff, a good volunteer program usually results. Strong emphasis should be placed on reliability, on workers reporting when they are expected and staying for as long as they have agreed to remain. It will be necessary to define clearly the services and responsibilities of the individual. This should be done in such a way that the volunteer will see his value in relation to the operation in which he is working, as well as to the total scope of work."

6 important advantages





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2. Smooth, streamlined sludge collection without any whipping action or local disturbance.

3. Low power requirements because full use is made of leverage.

4. No wear on gears or driving mechanism — peripheral drive operates under an extremely low torque.

5. It is impossible to overload the Flexidrive.

6. All mechanical parts easily accessible for maintenance without interrupting service.

For Clarifiers of 45 feet diameter or larger, Graver offers equipment that does not require precision tank finishes or accurate tracks. The Flexidrive principle of construction permits the bridge to easily follow horizontal and vertical "off" dimensions. The "knee-action" principle, which has been universally adopted by the automotive industry, permits full power transmission with flexible, smooth action and low cost of installation.

Primary Clarifiers are equipped with an Automatic Skimmer which operates on a brand new principle and has many outstanding features. Avoiding all of the disadvantages of surface suction types or scraping mechanisms, this skimmer positively traps the scum and removes it to the last ounce.

Used with the Graver Flexidrive Clarifier, the skimmer can be operated to suit actual requirements, since it can be set to remove scum on any desired schedule from once every revolution to once a day.

Whatever your clarification needs, consult Graver. We'll gladly give you full details without obligation.

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43-42-W

The Trans-Pacific Airport

How San Francisco Plans to Make a Post-War Suburb out of Singapore

THERE are 3,200 acres of mud flats out in San Francisco Bay that are earmarked for the future—at present a dismal-looking array of land and water, forced into the unhappy job of receiving Eastbay sewage. But this particular combination of mud and sea water has been staked out by a progressive group of planners and is being measured for an airport, designed to make the Pacific Ocean a San Francisco suburb.

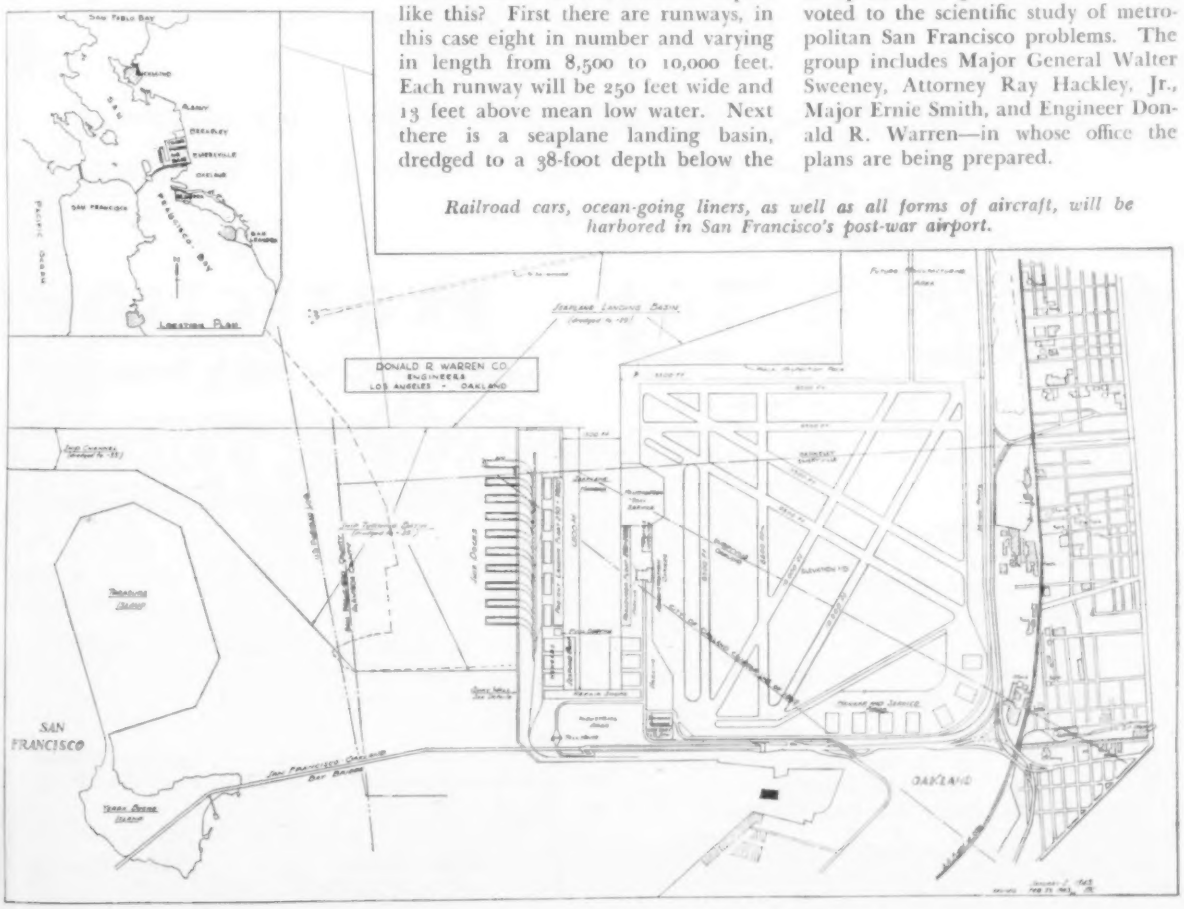
When it comes to building airports, one doesn't have to be an engineering wizard to realize that 3,200 acres is a lot of land. Prior to the war, any city with 640 acres set aside and equipped with a few all-weather runways, was among the elite and select few—known for their aeronautical aggressiveness and foresight. Also prior to the war, this supposedly air-minded nation of ours sported a grand total of some 350 transport planes, a sickly contrast to the 1,000-plane bomber raids in a single attack that now have become almost commonplace. San Francisco's potential airport, a technical counterpart of Wendel Willkie's famous book, "One World," will be exactly five times the size of the pre-war port and will depend for its very existence on making China, Russia, India, South America, and Australia as close and intimate as Omaha, St. Louis, Mexico City, and Montreal.

This sort of international airport will take care of everything from airplanes to ocean-going liners, from seaplanes to heliocopters, and from dirigibles to railway lines. Moreover, it will have a healthy manufacturing area available close by. So central is the location that it will require only ten minutes to put our global commuter into the downtown district of either Oakland or San Francisco. Couple this with weather conditions that are as favorable as anywhere in the bay and relative freedom from fog, and one begins to see the natural advantages that are inherent in the port.

What does it take to make an airport like this? First there are runways, in this case eight in number and varying in length from 8,500 to 10,000 feet. Each runway will be 250 feet wide and 13 feet above mean low water. Next there is a seaplane landing basin, dredged to a 38-foot depth below the runway level, giving the seaplanes a 25-foot depth for landing purposes. With this there is a seaplane harbor 1,500 feet wide and 6,800 feet long. Alongside there are to be ship docks—10 of them, 800 feet long and 200 feet wide with a 250-foot slipway between each. A railroad line will service the docks and freight landing areas, and a helicopter taxi service will be available to passengers.

When the port is completed, it will have required an expenditure of around $60,000,000. However, the engineers point out that this need not be spent immediately. For slightly more than half, they estimate that the dredging could be completed, four of the runways and some of the dock facilities constructed, as well as most of the buildings. Then as the need made itself evident, added construction could be undertaken to complete the project.

This trans-Pacific airport is being studied under the sponsorship of the Metropolitan Developers, a non-profit, non-political organization that is devoted to the scientific study of metropolitan San Francisco problems. The group includes Major General Walter Sweeney, Attorney Ray Hackley, Jr., Major Ernie Smith, and Engineer Donald R. Warren—in whose office the plans are being prepared.



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What Is the Future of the Real Estate Tax?

Two comments from tax economists on the excerpts from the Treasury Department Committee's report on "Municipal Financial Problems and the General Property Tax," as published in the September issue of THE AMERICAN CITY *(pages 73-75).*

By HARRY GUNNISON BROWN
Professor of Economics, School of Business and Public Administration, University of Missouri

THE principal recommendations as to property taxation by the Treasury Department's Committee on Intergovernmental Fiscal Relations seem to be: (1) that there should be collected from landlords "a service charge for local benefits to property" and (2) that there should be "a further collection . . . from occupants on their rental value of occupancy."

As to the collection from landlords of a service charge for local benefits, it cannot be emphasized too strongly that these are almost altogether *situation* benefits. And they are not "local" in any narrow sense. The construction, upkeep, lighting, and policing of streets, for example, are not of equal benefit to every piece of abutting land. Street maintenance may add much more to the situation advantages of centrally located sites than of sites in the suburbs. It may, indeed, help to determine the merchandising advantages of areas miles away from where the streets are constructed. And many other circumstances, including the location of schools, parks, and subway stations, have a bearing upon the situation advantages of particular pieces of land whose owners may be the delighted recipients of annual location rents for which they are personally not at all responsible.

If this is the authors' thought, then they are indeed doing well to advise collecting from landlords for these benefits, to the end that the funds so collected may be used for the benefit of the entire municipality rather than go into the pockets of a few.

Benefits to Sites Not to Structures

The authors wrote of this "service charge" as "a collection from landlords." It is to be hoped that, in so writing, they intended definitely to emphasize the fact that the "local benefits to property" are benefits to the *site* rather than the structures on it. The structures on the site, as structures, cannot normally be worth appreciably more than it would cost to duplicate them, regardless of the advantages present at the particular location. The advantages from streets, nearness to schools or fire-fighting equipment, to subway stations and bus lines, etc., etc., are advantages that inhere in the situation, i.e., in the land. If the service charge is to be levied on those who gain these advantages, it should be levied on and collected from the *landowners* irrespective of the amount of improvements on each owner's land. And it should be collected *in proportion to the value of the land* held by each owner.

Such a charge, if so levied—and that is how it ought to be levied—would really be a land-value tax. Since the value of land in municipalities is situation or *site* value, it would be a site-value tax. And any logical defense of the authors' "service charge on landlords" would be an argument for a tax on site values. It would appear, therefore, that the authors must mean—certainly they should mean—essentially this. But they don't quite clearly say so. They leave the reader with the suspicion that their proposed service charge may possibly be intended to apply to the value of buildings as well as the value of sites or, even, that it may be intended to rest on landowners in proportion to the area of their land or to its frontage.

Nevertheless, the incomes which property owners are able to enjoy *because of the presence of the community and the services rendered by the community* are mirrored in the values of the sites they own and are *not*, in general, in proportion to the areas or the frontages of these sites or in proportion to the improvements on them. If, then, the authors do not have a site-value tax in mind, we can feel very sure that what they do have in mind is less simple, less practicable, less logical, and less desirable than a site-value tax would be. If they do have a site-value tax in mind, one could wish they had made this crystal clear. Or do they hope for greater success in getting the thin edge of the idea into antagonistic minds by *not* being crystal clear?

"Concession to Housing"

At one point in their discussion, before propounding their own solution, the authors refer to the "unpopular general property tax" and go on to say that the attack on this tax "gains strength because of the traditional interest in widespread home ownership." At a later point they comment on "the criticism that much of the weight of the local tax system falls on housing, an area of expenditure in which the nation is trying to improve standards," and they write of the necessity of "some concession to housing."

There could hardly be a more appropriate "concession to housing" and there could hardly be a tax change more favorable to "widespread home ownership" than a change in the direction of abolishing or reducing taxes on houses and other taxes burdensome to the comparatively poor, and increasing the tax on site values. A high site-value tax puts a heavy penalty on the economically wasteful practice of holding land vacant and out of use while streets and roads, electric and telephone wires and gas, water and sewer mains are extended past them. By discouraging such speculative holding and making land more easily available for use, such a policy would make rents lower, whereas taxes on houses tend to make shelter more costly. Thus, the site-value tax policy would indeed be a real and a most significant "concession to housing."

The cost of owning a home includes the cost of both building and land. The sale price of a building—if new—is almost altogether a question of the cost of construction. But the sale price of the lot tends to be the capitalization (at the current interest rate) of the anticipated net rent from the lot—i.e., rent minus taxes. The more largely site-value taxes are substituted for taxes on buildings, the lower is the net land rent and the lower is the sale price of lots and the easier it is for the person of small means to own his home without assuming a crushing mortgage indebtedness. Thus (and the arithmetic is clear to one who will go into it carefully) home owners and home ownership would be really encouraged without the putting of new and heavy tax burdens—as some would do, to "relieve" home owners!—on the poorer

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laboring and tenant groups for whom home ownership may still remain an unrealizable ambition.

An Occupancy Tax?

With regard to the authors' second main proposal, viz. "an occupancy tax" or a collection "from occupants on their rental value of occupancy," we shall do well, perhaps, not to approve too readily. In this connection the authors of the report seem concerned with making "some allowances for individual ability to pay," and they even propose to make the rate of taxation progressive. This tax appears to be essentially a tax on a particular kind of consumption—and on a necessity, at that, since all of us need shelter—but so adjusted as to have some distant relationship to a progressive income tax with exemptions for dependents. But the more closely the authors make it approximate the income tax, the more one wonders why they prefer it to the income tax. They do, in fact, express an opinion that it "would probably encounter less difficulties," in regard to problems of emigration and administration, than a local income tax. But might not a city levying such an occupancy tax, when other cities did not, find workers in it more largely living outside its borders? And might not the burden then be shifted back upon owners—unless and until the resulting discouragement to house building and the consequent scarcity of houses again raised house rents?

When commenting on "municipal sales taxes in New York and New Orleans; a flat earned-income tax in Philadelphia; a license tax based on volume of business in Louisville and Richmond; a one-cent gasoline, one-cent bottle beer and two-cent cigarette tax in Birmingham; and gasoline, automobile license and cigarette taxes in Kansas City," the authors say:

"But these developments involve piling taxes three deep in a number of cases, and they represent at best additional complications in a revenue system already highly complicated."

If the occupancy tax is, in practical effect, a peculiar type of graduated income tax penalizing persons who spend a disproportionate part of their incomes on housing, may it not fall under this condemnation? Might we not consider this tax as being a local income tax levied in addition to the state and Federal income taxes?

Charges for Municipal Services

Under the heading of "Alternative Proposals" the authors say:

"Many municipal services yield special benefits, and the cost might reasonably be covered in this way [i.e., special assessments]. Some municipalities could revise their public utility charges to cover costs, or even to contribute to the general treasury."

If a city owns and operates its water works or an electric lighting plant or a gas plant, there seems no reason why *users of the service* should not pay the full cost of providing such service just as they would have to do if it were provided by a private corporation. And so with other public services which may properly be sold to individual users, such as, perhaps, garbage disposal, just as bus and railroad transportation, clothing and food are sold.

But it does not follow that a municipality may properly use its publicly owned utilities as a major source of revenue, i.e., in lieu of taxation. To do so is to subject its people to monopolistic charges which, if made by a private corporation, would be protested. To do so—e.g., with water and light charges—is similar in principle to the municipality's holding a monopoly of the sale of bread or shoes and supporting its government by charging monopolistic prices for them. Certainly excess rates for such services are not justifiable if they are made *in order that* the site-value tax may be kept down and *in order that* landowners may keep for their private pockets a large slice of the annual community-produced rental value of sites.

Local Fiscal Independence

It is interesting to note, in passing, that the report, although protesting its "regressivity" and referring to it as to be considered only "as a last resort," does suggest using a modified form of the retail sales tax rather than "surrender local fiscal independence."

But it is not necessary to adopt an undesirable tax to avoid surrendering fiscal independence, except possibly in the sense that legislatures or public opinion will not permit the tax system we ought to have. In that case what should be the task of those who have carefully studied the tax problem if it is not to point out, again and again, the path of wisdom, even if, for a time, this path is rejected?

Untaxing Improvements

If the expenses of our governments are necessarily greater than can be provided for by the absolutely most desirable taxes, we may at least strive to use the less desirable ones as little as possible and the least desirable not at all. The tax on buildings is, indeed, likely to be burdensome. But the tax on site values could yield much more than it now yields; and if it were so used we could abolish or, at least, greatly reduce the burden on real estate *improvements* of all kinds without resorting to the more undesirable taxes to anything like the degree often assumed.

A site-value tax does not penalize efficiency in serving the community. It does not discourage the accumulation of capital or drive capital to other jurisdictions. It is consistent with a competitive, individualistic, free-enterprise system of industry. It should be welcomed especially by those who really believe in this system and who would maintain it as against alien regimented "isms." If, by itself, it will not provide revenue enough for all of our various branches of government, this is certainly no reason for failing to draw upon it as far as is reasonably possible and thereby to lighten the burden of other taxation.

New Patterns in Local Taxation

By Edwin H. Spengler*

THE Treasury Department's Committee on Intergovernmental Fiscal Relations has correctly appraised the growing financial plight of urban areas.† With the development of high speed transportation and the growing importance of air-borne traffic, there is a tendency for cities to spread over much wider areas and for satellite communities to spring up around central cities. Meanwhile, the rate of urbanization has diminished as a balance has been reached between urban and rural populations. These trends point to the conclusion that the period of generally rising land values is probably over. At the same time there are increased demands among urban residents for greatly enlarged public services to include health, public welfare, education, recreation, and wider cultural opportunities. Ad valorem taxation, long the mainstay of local finance, has become outmoded as a result of these developments and

* Editorial Note.—The writer of this comment is at present a First Lieutenant in the United States Army Air Corps. Prior to his entry into the service he was Associate Professor of Economics at Brooklyn College, where he conducted course work in taxation and urban land economics. He also served as special consultant for the National Resources Planning Board. Lt. Spengler's article summarizes some of the leading features of his studies on the problems of urban taxation on which he had been working before being called to active duty.

† See The American City for September 1943, pages 73-75.

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threatens to prove more inadequate as times goes on.

Frantic efforts to maintain the tax base in the face of shrinking values have led to serious instances of overvaluation and inequitable treatment of property owners in certain cities. In others, the revenues have been maintained by raising the rates on those properties still remaining on the tax rolls. Attempts to improve the administration of the property tax have been salutary, but they do not go to the root of the problem.

Recognizing the need for a drastic revision of local tax systems, the Treasury Department's Committee concludes that "the major need is for a source of revenue which will enable the localities to tax their own resources independently." The following proposals are put forth for consideration:

1. "A service charge for local benefits to property and a further collection, more personal in character, from occupants on their rental value of occupancy."
2. "Unearned increment taxes and the further development of special assessments."

The report does not make clear whether the Committee favors these revenue measures as a replacement or as a supplement to the general property tax. Moreover, the mere mention of the "service charge for local benefits" without further supporting discussion, coupled with a somewhat critical analysis of the shortcomings of the "rental-value" tax, leaves some doubt as to the exact position taken by the Committee with respect to these tax measures.

With a view toward focusing greater attention upon certain elements in this fiscal program, I should like to suggest the abandonment of the tax on capital values of real estate and the introduction of a series of local taxes adjusted to the changing patterns of urban life. These would include:

1. A classified land-use tax
2. A tenancy, or rentals tax
3. A payroll tax on salaries and wages
4. An increment tax

Classified Land-Use Tax

This proposal contemplates that urban land would be taxed at a given number of cents or dollars per square foot, rather than on an ad valorem basis, the rate of tax varying with the use classification of the property. Rate differentiation among the several types or classes of property would be based upon such variables as special advantages of location, and intensity of use measured by ground coverage or building height. Thus, residential land would be taxed at one rate, commercial and business properties at another, and industrial parcels at still a different rate. Residential land, in turn, might be classified into one-family, two-family, and multiple dwelling types, with further subclassifications within each of these groups (depending on their height, ground coverage, etc.)—all taxable at slightly different rates. Similarly, special rates would be determined for stores, offices, lofts, warehouses, and other classes of commercial and industrial properties.

It is further proposed that such taxes be levied as stipulated annual amounts per square foot of land. According to this plan, assessed valuation in dollars of capital worth of land and improvements would disappear as the real estate tax base. In its stead there would be substituted the number of square feet of land area in each parcel, to which would be applied a specific land-use tax rate—the rate depending upon the use classification to which the property has been assigned. This tax would be imposed on land only—not on the improvement; yet the *rate* of the tax is directly influenced by the kind of improvement on the land—i.e., the use to which the property is put.

The calculation of these rates would be performed according to a carefully worked-out procedure, as scientific in method as any known technique of property valuation. A system of scoring might be developed whereby properties within a given area or zone and answering to a specified description would be assigned a certain number of points. All properties similarly classified would be taxed at the same rate per square foot.

This tax is frankly designed to apportion a part of the local tax burden among property owners on the basis of general local benefit and special benefits or privileges. It would, however, also open the way for regulatory taxation as an instrument for land-use control. Thus, it may be in the public interest to impose higher tax rates on properties where the ground coverage is unusually high, or to stimulate land use by adopting relatively high rates for certain classes of vacant land.

Rentals Tax

The tenancy or rentals tax would be calculated on rent payments or imputed rents. It would be imposed on tenants or occupants of residential properties at steeply progressive rates, the scale of tax depending upon the level of rent paid per room per month. Thus a tenant paying $20 per room per month would be taxed at a higher rate than one with a rental level of only $10 per room per month, and tenants in apartments renting for $40 and $50 per room would be taxed at still higher rates. Quarters renting for less than $7 per room per month would probably be exempt.

This tax would provide the municipality with a local measure of taxable capacity, inasmuch as room rent levels vary rather closely with income status. In other words, the rentals tax, imposed on the tenant, not the owner, would be directed toward the individual tax-paying ability of the *tenant*—not the rental value of the property.

Payroll Tax

Collected at the source in a fashion similar to the Federal income tax, this tax on salaries and wages would be levied on all employees earning a livelihood within the local taxing area. Basic minimum exemptions would be allowed and rates would become slightly progressive beyond stated maximum annual levels. This tax supplements the rentals tax as a test of individual taxpaying ability. It is assumed that a municipality should have taxing power over: (1) those with sufficient means, who live in the city, and (2) those who earn their livelihood within the city, but who do not necessarily live there. The payroll tax is designed to tax this latter group. Resident employees would be given offsets to this tax in the form of credits for rentals tax paid. The effect of this measure would therefore be to tax non-resident employees on income earned within the urban area. As local tax jurisdiction is broadened to embrace a large metropolitan area forming a complete economic unit, this latter tax can be abandoned, since the rentals tax or a regional income tax would then be justified as an adequate measure of taxpaying ability.

Increment Tax

This tax would be levied as a percentage of the increases (if any) in the capital value of land. Wherever land values continued to rise, such a tax would tend to act as a curb on speculation and as a means of providing society with its share in the growing community values. Special assessments would be eliminated under this plan.

Concluding Suggestions

I would further propose that municipalities should operate their public service enterprises on a break-even or cost-plus basis, rather than on the deficit principle. Where individual

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Many a soldier owes his life to a commander who drove him to the utmost in battle—*never let him slacken for a single fatal instant!* And after the war, many a worker will owe his economic safety to a leader who drove him continuously for higher Pay-Roll allotments for the purchase of War Bonds!

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benefit is sufficiently measureable to warrant the separate quotation of a price for services rendered, gross receipts should at least equal the costs of doing business.

The above recommendations do not preclude the possibility of state and Federal subventions and grants for purposes of equalization or for maintaining certain standards of quality and performance; nor do they stand opposed to the use of shared-taxes where the goal is a more efficient central collection of revenues intended for local purposes. In some instances, economic necessity may compel the complete transfer of certain functions (such as welfare and relief) to Federal or state administration and control.

In proposing these tax measures, I have assumed the existence of one local taxing authority. The many separate and overlapping local jurisdictions such as school, highway, sanitation, and park districts should be eliminated and replaced by a single overall unit of government to administer these local taxes. Ideally, local governments should be enlarged to the proportions of a metropolitan region, consisting not only of a central city but of an entire economic unit including all dependent and cooperating satellite communities and towns. As this goal is reached, the powers of local taxation might very well be expanded in such a way as to enable these "super-cities" to finance municipal functions embracing a vast urban area.

In broad outline I find myself in substantial agreement with the Treasury Department Committee's proposals. No doubt we would differ with respect to the use of specific tax measures. However, I believe the program I have recommended is sound. The combined revenue yield would be high, and at the same time stable and reasonably elastic. Most important, shifts in land use patterns, tendencies toward decentralization, and declining real estate values would not be of major concern from the fiscal viewpoint. Community planning could therefore go forward, and urban rehabilitation projects undertaken without fear of the ill effects upon local revenues. Original problems of classification, formulation of rate policies, definition of taxable bases, and the development of collection techniques are, to be sure, serious obstacles that will require a considerable amount of ability, cooperation, and effort before a workable system of taxation can emerge. However, once this first stage has been passed, a practical, efficient, and equitable procedure for tapping taxable capacity will be in operation, and the recurring problems of arriving at an equitable valuation for local taxation will have virtually disappeared.

Unquestionably, the adoption of tax measures such as those proposed would, in most jurisdictions, necessitate sweeping revisions in the constitutions, statutes, and administrative policies. However, these proposals have been put forth on the assumption that existing legal restrictions have outlived their usefulness and that in view of certain economic pressures it is high time that drastic alterations be made in local tax systems. As stated by the Committee: "The widely prevailing notion that the general property tax, except for new exemption and rate limitations, is a crystallized institution and fixed for all time should be exploded." Municipalities confronted with the problem of meager revenue and perhaps eventual bankruptcy may be forced to take steps which, a few years ago, might have been considered ill-advised and revolutionary.

Planning for "Homefuless"

By Beardsley Ruml

IN certain quarters there is a prejudice against the word "planning," a prejudice which probably springs from apprehension that planning may lead us into a regimented way of life. I feel that just the opposite is the case. Planning is to regimentation both antithesis and antidote. Regimentation springs up after planning has failed. Regimentation must depend on force and violence to implement its intuitions and its fanatic will. Free, open, democratic planning, thinking about our national future out loud, will contribute to the success of our form of government by bringing abiding satisfactions in the American way of life. Thus, planning will render regimentation, always distasteful, unnecessary. . . .

It is inescapable that the national state, through an explicit and implemented fiscal and monetary policy, must complement and supplement the activities of private business in the maintenance of high production and high employment. . . .

There is, however, a wide area between a policy by the government of preserving solely fundamental, protective standards, and, on the other hand, of assuming a role of positive and ubiquitous interference to guarantee placid, animal well-being to every citizen. For example, within this intermediate area I do not believe that the government injures the dignity of the individual when, through positive action, it protects him against disease, unemployment, under-nutrition, unwholesome housing, and pauperism in old age. I do not believe that removing these hazards from life will so narrowly bound the area of choice and adventure and error as to weaken the normal impulse to human effort, or to remove from man the knowledge of good and evil. The government may properly undertake a positive program to provide a minimum standard for civilized needs, and after these minima have been obtained there will be ample opportunity for individual effort to express itself in exceeding them, and to find in other areas of human activity and stress the occasion for productive expression. . . .

If we rank homefulness* high in the order of human values, a new importance would be attached to city planning. We would not continue these activities as they exist today, with their pitifully small budgets. We would not permit the reckless destruction of the home values that we have seen in so many American cities in the past. We would be more careful to make sure that the houses which we authorize to be built would be worthy as homes when they have been so transmuted by the men and women and children who live in them.

* In his challenging little book from which these excerpts are quoted — "Government, Business and Values," copyright 1943 by Harper & Brothers — Mr. Ruml coins the word "homefulness" (as contrasted with its opposite, homelessness) as connoting the creation of "a satisfying and needful unity from a diversity of familiar objects in time and space, of things, persons, and events."

Bold and practical city planning is needed in evolving urban development programs for the post-war period.

No satisfactory and well-balanced urban building program will be forthcoming after the war if building takes place almost exclusively on the outer rings of urban areas. The building of new or rebuilding of old sections should proceed simultaneously for the best results and long term stability.

—From an Address by E. S. Draper, Deputy Commissioner, Federal Housing Administrator, before the Mortgage Bankers Association, September 24, 1943.

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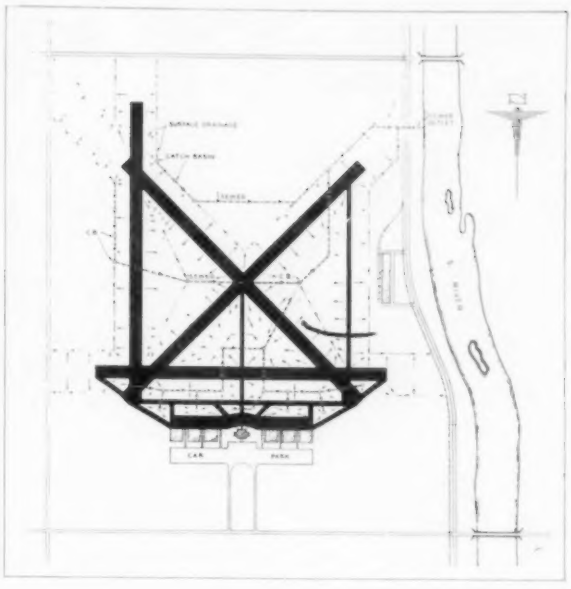
Airport Design

Further Arguments Over the Flexible vs. the Rigid Type Runway



TO the Editor:

Upon reading Mr. Stephens' article on airport design (see April 1943, pages 81-83), it struck me that not many engineers have opportunity to build more than one or two airports.

One airport does not make an engineer an expert. Having one large airport to my credit and a little tinkering with a small airfield, I make no claim to be in that category. But, being an engineer and for many years deeply interested in airport development, I do know that the airport designer is confronted with many pitfalls.

To my mind there is a danger in articles such as that of Mr. Stephens, of spreading the gospel of under-building. Sticking in drain tiles, stabilizing the subgrade, and applying a thick or thin coat of bituminous material, unfortunately, does not always make an airport.

While it is true that there is a great deal of difference between airport and highway traffic, it should be noted that ordinarily airport loadings are less frequent but considerably higher than anything allowed on highways. Experience in highways, where gross wheel loads are seldom over 12,000 pounds and usually under 10,000 pounds, is apt to be misleading if applied to airport design without giving consideration to heavier loadings.

Drainage Not Enough

A basic principle of Mr. Stephens appears to be that adequate drainage will make almost any airfield a set-up for bituminous runways. It is of great importance that provision be made for rapid and complete removal of surface waters. However, it is futile to attempt to remove capillary water from soils underlying the runway pavement.

No one has to be any great shakes as a prognosticator to know that airplanes are going to be heavier and heavier. Many planes in use today have wheel loads of 25,000 pounds. One type of transport plane is said to have a gross weight of about 67,000 pounds, with 29,000 pounds carried upon each of the twin main wheels. But those planes are pygmies as compared with one that landed some time back at our Wayne County Airport and which, so far as I know, is the largest land plane yet constructed. That plane has a gross weight variously reported to be between 140,000 and 164,000 pounds. Undoubtedly, heavy planes for many years will be the controlling factor in airport pavement design.

As I interpret his words, Mr. Stephens recommends that runways be designed for a maximum load per square inch of contact area between the tire and the pavement. That is a misleading basis.

A man could ride a bicycle having a 60-pound pressure in the tires without exerting any great stress on the pavement. A large bomber might also have a 60-pound tire pressure which would be spread over perhaps 1,000 square inches under each tire, while the pressure under the bicycle tire would be spread over some two square inches. Obviously, the unit pressure on the pavement without some consideration of the loaded area, gives no indication whatever as to the stresses imposed upon the pavement.

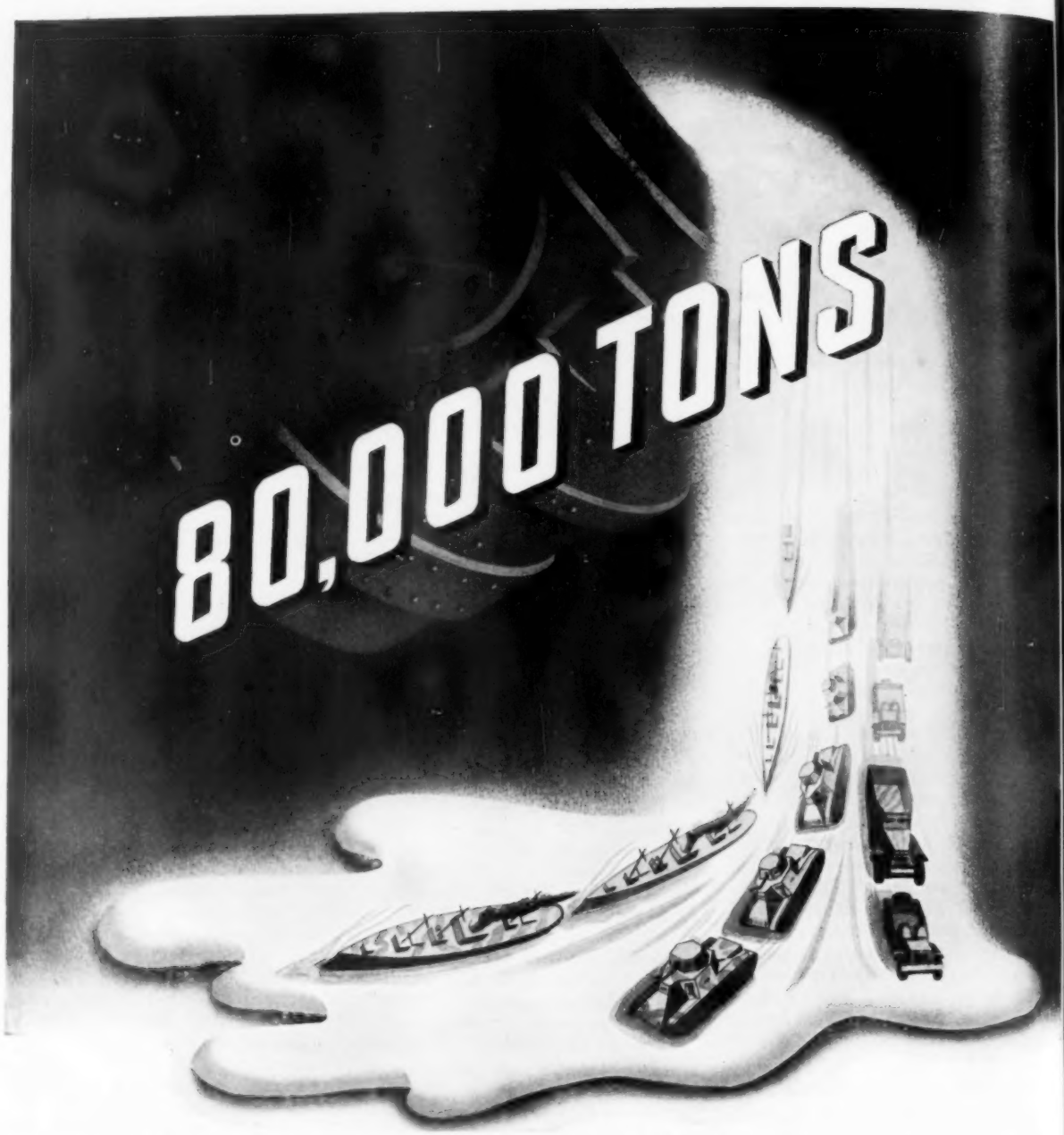
Plenty of studies have been made of this subject, but one of the most comprehensive I know of was made by Prof. J. Niels Thompson of the University of Texas, who last year prepared a paper for the Texas Section of the American Society of Civil Engineers. Professor Thompson's study was undertaken because of the increasing number of failures of flexible pavements under heavier wheel loads, although tire pressures were actually tending to decrease by reason of balloon tires.

He presents a number of curves showing the stress in a flexible base pavement at various distances below the surface and for various loaded areas. Assuming a 75-pound per square inch pressure at the pavement surface, these curves may be used to show that if the load is spread over a circle having a 10-inch diameter, the pressure may be reduced to approximately 10 pounds per square inch at a depth of 15 inches below the surface. Thus, if the subgrade has a bearing power of ten pounds per square inch, which is a common value, a flexible pavement 15 inches in thickness would be required. If the same pressure were spread over a 16-inch diameter circle, the pavement would have to be approximately 24 inches in thickness to reduce the unit pressure to 10 pounds per square inch. So in designing runways, not only should consideration be given to unit pressure on the surface, but to the loaded area as well.

For runway surfaces there are but two choices, concrete or bituminous materials. Where year 'round service is not the objective and where only light planes are operated, satisfactory runways no doubt can be built along the lines suggested by Mr. Stephens. But if dependable runways are needed to give commercial planes day and night service, year in and year out, the engineer must design his runways to carry the load by following accepted engineering principles.

He can design them in concrete, with a thickness of eight inches usually sufficient. He can design them of bituminous materials, with oftentimes the subgrade soil and load factors showing necessity for a thickness of anywhere from 20 to 30 inches, or even more. And here lies the trouble. Such construction is expensive, and so the bituminous runways are skinned down. Wishful thinking won't make a 6-, 8-, or 12-inch bituminous runway do the job under modern airplane traffic. That is a matter of record.

LEROY C. SMITH,
Engineer-Manager, Wayne County, Mich., Airport.



80,000 tons of ferrous metal. Enough tonnage for 3,000 medium tanks. Or 8,000 trucks. Or 60,000 jeeps. Or 20,000,000 rifles. Or 8 Victory ships.

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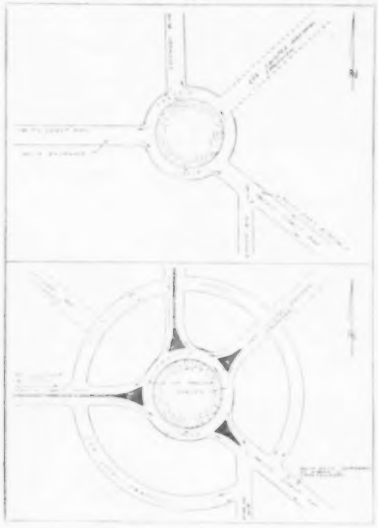
Traffic Circle Streamlined

How the Planning Commissions of Long Beach and Los Angeles County and the California Division of Highways Helped Eliminate a Bottleneck Between War Workers and Their Jobs



ABOVE: *A before and after view of how engineers and planners removed a bottleneck from the Pacific Coast Highway. Notice how traffic was channelized and the entrance curves were flattened. Also, observe the large outer circle for local traffic.* LEFT: *A view of the modernized traffic circle.*

IT LOOKED all right in 1934 when it was built by California's Division of Highways. In fact, engineers considered it a great forward step in the handling of traffic. But in 1942 the planning commissions of both Long Beach and Los Angeles County and engineers with the Division of Highways agreed that the speed and density of traffic had caught up with them.

Basically there was nothing wrong with the original design as subsequent studies showed. All that was required was to increase the super-elevation and flatten the curvature of the curb returns and the entrances to the circle. Traffic islands placed in the proper position channelized traffic and helped to prevent collisions. An outer circle also was constructed to accommodate local traffic.

The super-elevation was increased by placing asphaltic concrete, varying from a minimum of 0.17 feet to whatever depth was required. The revamped design called for new curb and gutter around the entire outer periphery of the circle.

The outer circle figured prominently in the cooperative agreement reached by the state, the property owners, and the two planning commissions. On the old inner circle, adjoining property owners had rights of ingress and egress, however the fast-moving traffic presented a hazard to its use. The owners therefore agreed to donate the necessary land and rights of ingress and egress—if the outer circle were constructed where they could locate their businesses. The inner circle has been planted with trees and shrubs by the Long Beach Park Department.

The work has been completed for more than a year. It was constructed at a cost of $31,262. According to W. L. Welch, it represented the elimination of a bottleneck between the defense worker and his job in one of the most vital industrial areas of Southern California.

$30,000,000,000 Planned Urban Construction

A TREMENDOUS back-log of planned urban construction is envisaged by the National Association of Real Estate Boards as a result of a survey released on October 2. The Association based its estimate on reports made to it by local real estate boards in 287 cities responding to its 41st semi-annual survey of the real estate market. In summarizing the results of this survey the release said:

"In the 287 cities covered by the Association's survey, there is approximately $1,500,000,000 worth of construction definitely planned. Only building that is actually "on the boards" and ready to go as soon as the war is over was included in the report. Planned construction averaged $516 per person for the combined population of the reporting cities. If this average prevailed for the whole nation, it would indicate that there is a deferred back-log of construction running over thirty billions.

"Long-delayed public works, some of which would take five years or more to complete, are the biggest single group of projects that are already well-assured for immediate post-war construction. Sewer systems, streets, and hospitals are frequently mentioned. Airports — commodious airports — are on the list. And private residential construction for normal civilian use is on its toes waiting for the go signal. Known ready-to-start home building projects outbulk the ready-to-start public construction in very many of the reporting cities. . . .

"City planning and replanning is already under way in 55 per cent of the reporting communities. This is going forward in various ways under city planning commissions, some of which are being reconstituted and given new funds to do the job, or under mayor's committees, or joint civic or business committees, with real estate board committees as active participants. . . .

"Reports from 117 of the cities, with a combined population of 26,613,722 persons, estimated a total of 110,909 acres in older sections of these cities as ripe for such rehabilitation. This is an average of four acres of blight for every thousand citizens."

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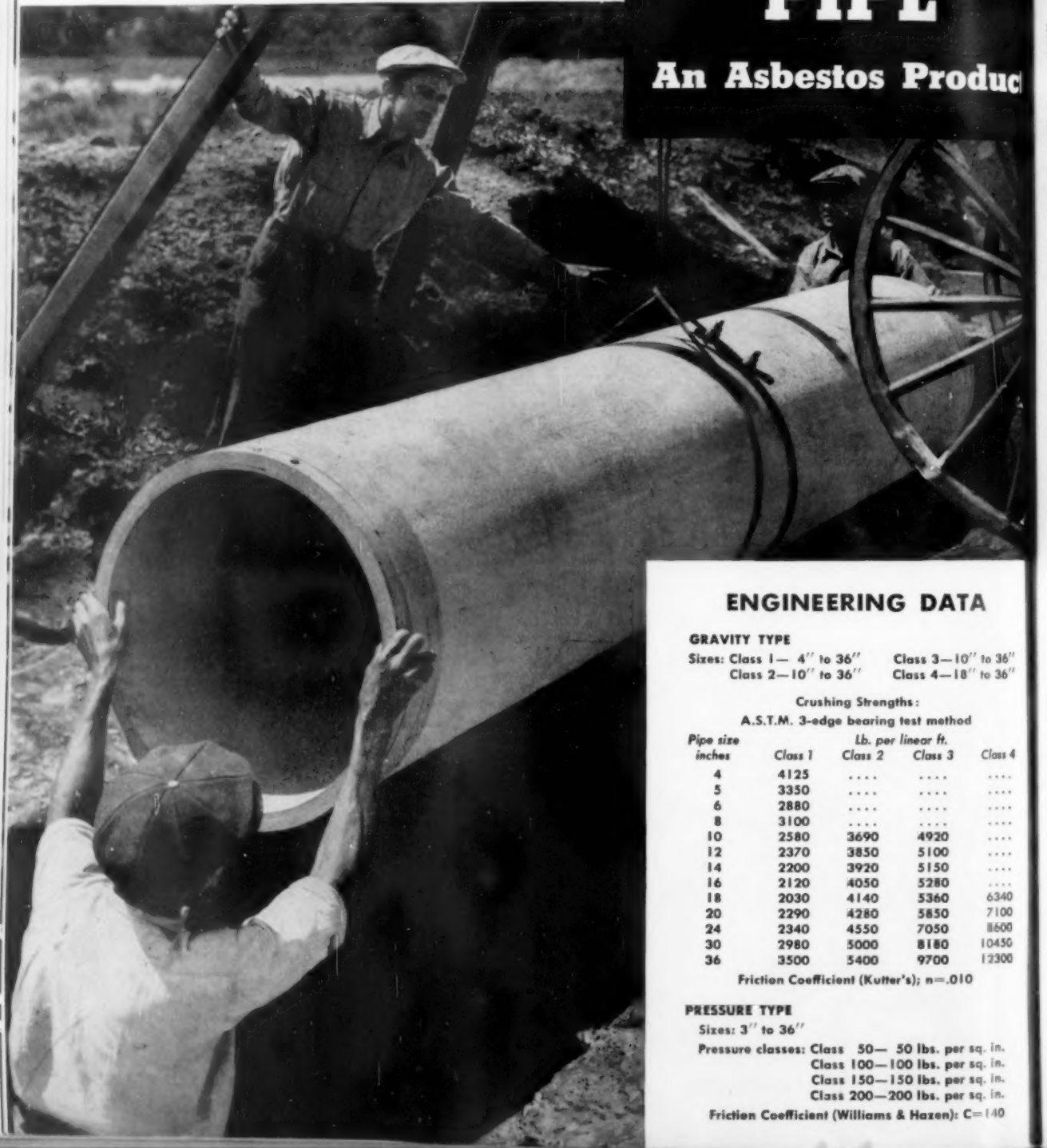

ENGINEERING DATA

GRAVITY TYPE

Sizes: Class 1— 4" to 36" Class 3—10" to 36"
Class 2—10" to 36" Class 4—18" to 36"

Crushing Strengths:
A.S.T.M. 3-edge bearing test method

Pipe size inches	Lb. per linear ft. Class 1	Class 2	Class 3	Class 4
4	4125	....	....	....
5	3350	....	....	....
6	2880	....	....	....
8	3100	....	....	....
10	2580	3690	4920	....
12	2370	3850	5100	....
14	2200	3920	5150	....
16	2120	4050	5280	....
18	2030	4140	5360	6340
20	2290	4280	5850	7100
24	2340	4550	7050	8600
30	2980	5000	8180	10450
36	3500	5400	9700	12300

Friction Coefficient (Kutter's); n=.010

PRESSURE TYPE

Sizes: 3" to 36"

Pressure classes: Class 50— 50 lbs. per sq. in.
Class 100—100 lbs. per sq. in.
Class 150—150 lbs. per sq. in.
Class 200—200 lbs. per sq. in.

Friction Coefficient (Williams & Hazen): C=140

State Agencies for Post-War Planning

(List compiled September 1943 by the Council of State Governments)

Alabama

State Planning Board
W. O. Dobbins, Jr., Director
711 High Street, Montgomery

Alabama Emergency Finance Corporation
Governor Chauncey M. Sparks, Chairman, Montgomery

Arizona

Arizona Resources & Planning Board

Arkansas

State Planning Board
L. A. Henry, Engineer-Director
State Capitol, Little Rock

California

State Reconstruction and Re-employment Commission
Charles H. Purcell, Chairman
State Capitol, Sacramento

Employment Stabilization Commission
Homer W. Buckley, Chairman
1085 P Street, Sacramento

Colorado

State Planning Commission
El Roy Nelson, Director
130 State Building, Denver

Connecticut

Postwar Planning Board
Charles Seymour, Chairman
President's Office, Yale University, New Haven

Connecticut Development Commission
Sidney A. Edwards, Director
State Capitol, Hartford

Delaware

State Highway Commission
Frank V. Du Pont, Chairman
Continental - American Building, Wilmington

Council of State Agency Executives
Dr. M. A. Tarumianz, Chairman
Delaware State Hospital, Farnhurst

Florida

State Planning Board
C. P. Hellenstein, Executive Secretary
P. O. Box 149, Tallahassee

Economic Advancement Council
Governor Spessard Holland, Chairman
State Capitol, Tallahassee

Governor's Committee on Postwar Planning and Development also being organized. Will work with Planning Board

Georgia

Agricultural and Industrial Development Board
Basil Stockbridge, Acting Secretary
State Capitol, Atlanta

Idaho

Idaho State Planning Board
Joe D. Wood, Executive Secretary
P. O. Box 879, Boise

Illinois

Postwar Planning Commission
Oscar Nelson, Secretary
11 South La Salle Street, Chicago

Indiana

State Economic Council
Raymond L. Pike, Director
609-12 Board of Trade Bldg., Indianapolis

Iowa

Postwar Rehabilitation Commission
State Capitol, Des Moines

Kansas

State Planning Board
H. R. Miller, Director
801 Harrison Street, Topeka

Kansas Industrial Development Commission
William E. Long, Director
801 Harrison Street, Topeka

Legislative Council
F. H. Guild, Director
State House, Topeka

Kentucky

Governor's Cabinet (1936 Statutes) created cabinet to which all functions of State Planning Board were transferred

Louisiana

Economic Development Committee
Cave A. Nelson, Director
921 Canal Building, New Orleans

Department of Public Works
C. Carter Brown, Chief, Planning Section
State Capitol, Baton Rouge

Maine

Maine Development Commission
Harry B. O'Brien, Director
State House, Augusta

Maryland

State Planning Board
Abel Wolman, Chairman
Johns Hopkins University, Baltimore

Commission on Postwar Reconstruction and Development
Roy B. White, Chairman
B. & O. Building, Baltimore

Massachusetts

State Planning Board
Miss Elisabeth M. Herlihy, Chairman
11 Beacon Street, Boston

Massachusetts Committee on Postwar Readjustment
Dr. James W. Culliton, Director
15 Ashburton Place, Boston

Michigan

Michigan Planning Commission
R. B. Gay, Director
State Office Building, Lansing

Minnesota

Minnesota Resources Commission
J. W. Clark, Executive Secretary
State Office Building, St. Paul

Mississippi

Mississippi Board of Development
W. T. Helms, Director
1606-11 Tower Building, Jackson

Missouri

State Commission of Resources and Development
Wm. Anderson, Acting Director
State Capitol, Jefferson City

Montana

State Planning Board
D. F. Fabrick, Chairman
Montana Building, Helena

Nebraska

Dwight Griswold, Governor
State Capitol, Lincoln

Wardner G. Scott, State Engineer
State Capitol, Lincoln

Nevada

State Planning Board
Robert A. Allen, Chairman
State Highway Building, Carson City

New Hampshire

State Planning and Development Commission
Dr. Thorsten V. Kalijarvi, Executive Director
17 Capitol Street, Concord

Committee on Postwar Planning and Rehabilitation
Dr. Thorsten V. Kalijarvi, Secretary
17 Capitol Street, Concord

New Jersey

Commission on Postwar Economic Welfare
Senator Howard Eastwood, Chairman
Burlington

State Planning Board
Dr. Charles P. Messick, Chairman-Director
State House, Trenton

New Mexico

State Planning Board
Vincent J. Jaeger, Executive Director
Box 968, Santa Fe

New York

Postwar Public Works Planning Commission
John E. Burton, Chairman
State Office Building, Albany

North Carolina

State Planning Board
Howard W. Odom, Secretary
State College of Agriculture and Engineering, Raleigh

North Dakota

State Postwar Planning Board
State Capitol, Bismarck

Water Conservation Commission
Fred G. Orr, Acting Secretary
State Capitol, Bismarck

Ohio

Postwar Program Commission
Lt. Gov. Paul M. Herbert, Chairman
State Capitol, Columbus

Oklahoma

Planning and Resources Board
E. W. Smartt, Chairman
State Capitol, Oklahoma City

State Postwar Planning Commission
T. Elmer Harbour, Chairman
Oklahoma City

Oregon

Committee on Postwar Readjustment and Development
John W. Kelly, Executive Secretary
State Capitol, Salem

Pennsylvania

State Planning Board
F. A. Pitkin, Director
State Capitol, Harrisburg

Post-War Planning Commission
Mark S. James, Executive Director
State Capitol, Harrisburg

Rhode Island

State Planning Board
Alvah J. Webster, Director
1051 North Main Street, Providence

South Carolina

State Planning Board
F. E. Lawrence, Director
100 Calhoun Street, Columbia

Preparedness for Peace Commission
Ralph Tuten, Director
State Capitol, Columbia

South Dakota

Advisory Resources Board
A. M. Eberle, Secretary
South Dakota State College, Brookings

Natural Resources Development Committee (L. 1943)
Governor M. Q. Sharpe, Chairman, Pierre

Tennessee

State Planning Commission
R. A. Larabee, Executive Director
State Office Building, Nashville

Texas

Texas Resources Development Program and Postwar Economic Commisison
Coke Stevenson, Gov., Austin

Utah

Department of Publicity and Industrial Development
A. S. Brown, Director, Postwar Planning
Dooly Building, Salt Lake City

Vermont

State Planning Board
Philip Shutler, Director
State Capitol, Montpelier

Virginia

State Planning Board
Raymond V. Long, Executive Officer
State Finance Building, Richmond

Washington

State Planning Council
P. Hetherton, Executive Officer
Transportation Building, Olympia

West Virginia

State Planning Board
Dr. C. R. Orton, Chairman
W. Va. University, Morgantown

Wisconsin

Wisconsin State Planning Board
M. W. Torkelson, Executive Officer
State Office Building, Madison

Wyoming

State Department of Commerce and Industry
George O. Houser, Director
State Capitol, Cheyenne

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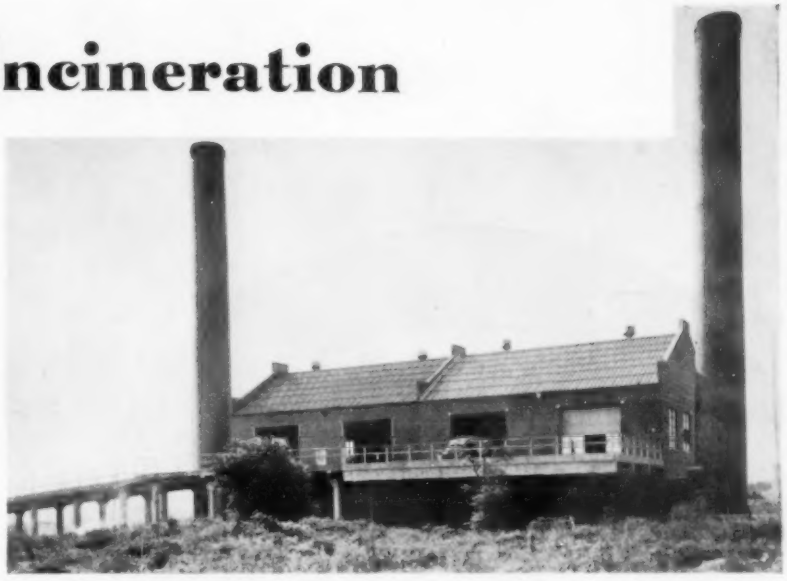
Wartime Incineration



How the incinerator at Newport News looks today. The new construction is confined to the right half.

OWING to an unusually rapid increase in population, resulting primarily from an influx of war workers and naval and military personnel into the district, the city of Newport News, Va., discovered early in 1942 that the existing municipal incinerator, built in 1934, was no longer able to adequately cope with the increased output of refuse. It was decided to build an addition to the present plant, and Federal aid to finance the project was sought and obtained.

The old plant consisted of a two-story building of reinforced concrete and brick construction, with a reinforced concrete ramp and turning platform. It contained two 60-ton furnaces, complete with combustion chamber, preheaters, and forced draft fans. The units were manually fed from the charging floor through brick-lined chutes, and the ashes were removed by hand. The waste gases were discharged into a header flue terminating in a radial brick chimney, located at one end of the building.

The new specifications called for a similar type of construction but required that, although the new building, header flue, and chimney should be large enough to accommodate two units, only one 60-ton furnace should be installed at that time. The contract also provided for connections between the different floors of the two buildings and for extending the present turning platform for the entire length of the new building.

Bids for the work were received on October 19, 1942, and the contract in the amount of $77,984 was awarded to George Allen & Son of New York on October 31.

Radical Design Departures

WPB, in assigning a preference rating of A-3-j to the new project, had expressly eliminated the use of structural steel, metal sash and sliding doors in the building construction, and steel casing for the furnace and equipment walls. These restrictions alone required a radical departure from standard incinerator practice in the design of the new plant and necessitated the consideration of many construction methods not previously applied to this type of work.

In addition to this, scarcity of certain materials, changes in preference rating requirements, and other factors necessitated many changes in design after construction work had been started. Ordinarily such changes would prove both cumbersome and costly, but the splendid and prompt cooperation received from the officials of the city and Federal agency went far to reduce the difficulties.

The original design contemplated the use of heat-treated wooden beams, girders, and columns to support the charging floor and turning platform. After these drawings had been approved, it was discovered that the overall preference rating was not high enough to secure the size and quality of timbers required, and an amended rating was consequently applied for. While waiting for the new rating, the contractor succeeded in locating a sufficient quantity of suitable used steel for the purpose; and new designs, utilizing this steel, were prepared, submitted, and approved. It is interesting to note in this connection that the final cost of the used steel was found to be considerably in excess of new steel. This was due to the fact that the used members had to be trucked from several sources and fabricated at a central shop.

Plant Description

The plant as finally built and accepted, consists of a two-story building of concrete, brick, and steel construction, connected to the old building. The outer walls are of red face-brick, and the interior walls of common brick. The roof is of precast cement tile supported by wood purlins and trusses. Wood-pivoted type sash is utilized for light and ventilation, and the truck entrance doors from the turning platform are of the rolling shutter type, of wood construction.

Precast stone is provided for the parapet wall coping and for the window sills and inserts. There are reinforced concrete lintels over the windows and doors, and the sloping roof is equipped with galvanized iron ventilators, gutters, and leader heads. The roof drainage is carried to the storm sewer through interior cast iron drain pipes.

The floor of the turning platform and charging floor is of reinforced concrete design supported on steel beams and girders, which in turn are carried by Lally columns. Each column has an individual footing. The foundations for the furnace equipment and stack are entirely independent of those for the building walls and columns. All of the concrete foundations are sup-

In total war even incinerators make an essential contribution to Victory, as officials of the important war town of Newport News, Va., can testify. Extensions to this city's plant were required as a vital safeguard to health and sanitation. Limitations on the use of steel and other critical material forced the designers and contractor to adopt interesting and radical revisions in this incinerator's structural and furnace design. This is the story of its construction.

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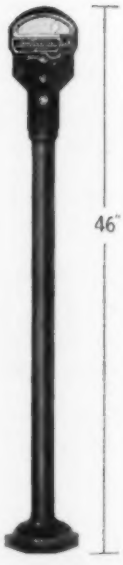


MI-CO METER COMPANY, 231-239 Court St., Covington, Ky.

Division of **THE MICHAELS ART BRONZE CO., INC.**

ported by creosoted wood piles.

The equipment consists of single, high temperature, multiple-cell, mutual-assistance type furnace, designed for top feeding. The material to be incinerated is delivered to the charging floor by the city trucks and either discharged directly into the furnace chamber through two brick lined charging openings or deposited on the floor for future burning. These charging chutes are equipped with refractory lined, swing type covers.

As a substitute for steel casing and in order to reduce to a minimum the structural steel requirements for the equipment, the outer walls of the furnace, combustion chamber, preheater, and flues are built up with 8 inches of common brick and stiffened with angles and channels, which are securely bolted to steel buckstays. The bottoms of these buckstays are embedded in the concrete floor and the tops held together with tie rods equipped with turnbuckles. The common brick outer walls are backed with 2½ inches of insulating brick and 9 inches of first quality fire brick. Staggered expansion joints are provided about every 5 feet in these walls.

All arches over the furnace, combustion chamber, preheater, and flues are of the sprung type, supported by special skewback blocks. The thrust from these blocks is transmitted to the buckstays through heavy steel angles. The arrangement of the equipment is such that groins are avoided throughout the installation. Relieving arches are used to carry the wall above the sprung arches, and the tops of all arches are insulated with 2 inches of asbestos.

In the furnace chamber the refuse rests on cast iron stationary grates where it is ignited and agitated until burned down to an inert ash. Each furnace cell is equipped with refractory lined, cast iron, guillotine, counter weighted stoking doors. These doors have an auxiliary opening through which stoking operations take place. Below these stoking doors is a cast iron ash pit door through which the fine ash is removed. When finally burned, the residue is raked off the grates through the stoking doors into an ash buggy and removed for final disposition.

Combustion Arrangement

The gases of combustion from the burning refuse pass over the fuel bed, over a bridge wall, and into the combustion chamber, which is located at right angles to the furnace chamber. This combustion chamber is designed to provide a long and turbulent passage way for the gases before they are discharged either directly to the header flue or through the preheater. A baffle wall in the center of the combustion chamber, aids in deflecting the gases and in increasing their turbulence. As the area of the combustion chamber is large, the gas velocity is slowed down and any entrained dust deposited on the floor.

When final combustion has taken place, the waste gases can be discharged either directly to the header flue, or diverted through the preheater by manipulating the dampers in the outgoing flues. The preheater used is of the carborundum type consisting of 45 silicon-carbon tubes in a single pass. Because of the seasonal variation in the characteristics of the refuse, it was thought advisable to provide a by-pass so that the preheater could be short circuited. In the seasons when the refuse has a high calorific value, the plant can operate on natural draft, thereby reducing the power cost; and with a by-pass flue, the life of the preheater tubes is materially increased.

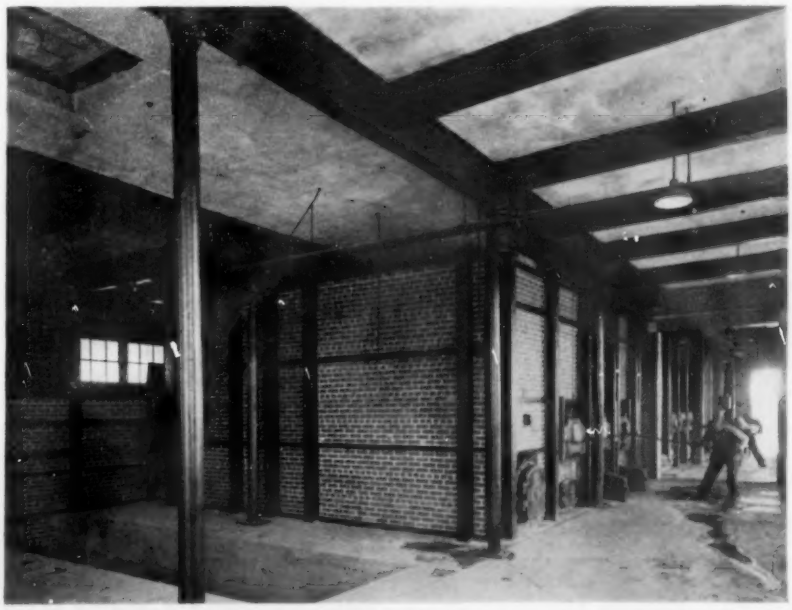
An American Blower forced-draft fan draws the air needed for combustion from the stoking floor and discharges it through the preheater through an outlet duct to the underside of the furnace grates. Each furnace cell is provided with a valve designed for minute adjustment so that any desired quantity of air can be fed to any cell.

The dampers in the main flue, from the combustion chamber and the preheater outlet flue, are of the refractory lined, guillotine type. The refractory consists of insulating fire brick held in place inside a cast iron casing by means of cast iron tie rods. These dampers are counterweighted and can be held in any desired position.

The header flue is located in the rear of the building and runs for its entire length. The floor of this flue is set at several different levels, thereby providing dust pockets where fly ash can be deposited. This header flue terminates in a red radial brick chimney 6 feet 3 inches inside diameter by 104 feet high above foundation.

The lining of this chimney is built of first quality fire brick, set in high temperature cement and varying in thickness from 9 inches at the bottom to 4½ inches at the top. A steel corset made of steel bands spaced about 3 feet on centers vertically and horizontally is used to support this lining. The chimney is constructed with a red radial brick outer shell, equipped with a lightning rod. An air space is provided between the lining and outer shell, and there is a concrete cap on the top of the chimney.

A test of the furnace was conducted on June 22, 1943, under the direction of Mr. Sol Ellenson, Assistant Director of Public Works, who supervised the preparation of plans and specifications. The material for the test was collected the previous day and stored overnight on the charging floor. These tests showed the material to contain approximately 73 per cent moisture and 19½ per cent combustible matter by weight. An average temperature of 1,850° F. was maintained in the combustion chamber, and the residue from the furnace proved to be approximately 12 per cent by weight of the total material burned.



Interior view of the stoking floor. Note the space that has been allowed for the future installation.

After the WAR..

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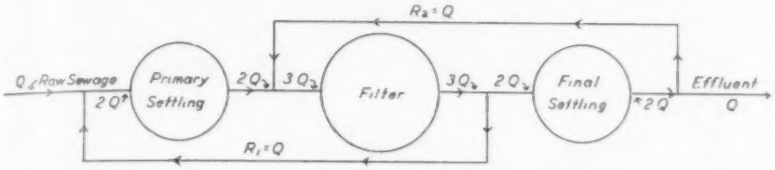
SEATTLE, 1120 EIGHTH AVENUE, SOUTH

About

High Rate Filters

And Their Effect on Sewage Treatment

By HENRY W. TAYLOR



Typical flow diagram for high-rate, biological filtration.

IN recent years one of the most significant developments in sewage treatment has involved a resourceful and new method of operating the trickling filter. Briefly it calls for an increase in the rate of filtration by recirculating a portion of the filter effluent. This, studies have shown, does not depreciate the final effluent and actually simplifies the operating problems to a certain extent. The recirculation makes the process continuous instead of intermittent and discloses a wide range of operating possibilities.

The process is covered by three basic patents. The license fees are, however, a very minor part of the plant cost. Furthermore, there are several firms licensed under the same basic patent so that sharp competition exists. The basic principle of all three centers around the recirculation of the filter effluent; the differences lie chiefly in the methods of manipulation. The story can perhaps best be told by briefly describing one of the more common systems.*

Developed Simple Plan

By research and experience, engineers with this firm have developed a simple plan which meets the average case involving ordinary sewage. The accompanying flow diagram illustrates the subject and shows the extreme flexibility of the scheme. As may be observed from the following discussion, the engineer can design to handle stronger sewages and trade wastes by varying the plan of manipulation.

Referring to the diagram, the raw sewage approaches the primary settling tank with a rate of flow called "Q." Assume that the plant is being placed in operation for the first time. The raw sewage is detained at the primary settling tank in accordance with the plant design, and the settled effluent proceeds to the trickling filter. The filter effluent is intercepted at a rate of R_1, and returned to the influent of the primary settling tank. By arbitrarily making R_1 equal Q the flow obviously is doubled. This artificially increased flow then is discharged to the filter and again R_1 is intercepted. However, this time there is a residual portion proceeding to the final settling tank. By still maintaining our ratio of $R_1 = Q$, it is apparent that this unintercepted portion equals the original flow.

Perhaps the most interesting sewage-treatment development in recent years has been that of high-rate, "biological" filtration. By decreasing the depth of the standard trickling filter and recirculating the effluent with the incoming raw sewage, extraordinarily good results have been obtained in the treatment of the effluent from primary settling tanks. This article decribes briefly how one of the processes works. A succeeding article will throw light on the results obtained and other methods of manipulation.

After the final settling tank has been filled and overflows, the entire flow is intercepted and returned to the influent pipe of the sprinkling filter. Thus, the primary tank influent has become 2Q, the filter influent is now 3Q, the final settling tank influent and effluent become equal to 2Q, and due to the second interception, the final effluent is Q.

How the Oxygen Exchange Works

When the plant is in normal operation and if $R_1 = R_2 = Q$, it is apparent that one volume of raw sewage is mixed with an equal volume of previously settled and filtered sewage and the period of primary settlement provides an opportunity for contact between the raw sewage and one partially oxidized. Before this mixture of raw and partially treated sewage reaches the filter, it is further mixed with another volume of treated sewage, which has been filtered more than once. A second opportunity for oxygen exchange is thus afforded, and filtration of the original volume of raw sewage follows. The raw sewage itself then takes its turn at recirculation and serves as a tonic to improve the quality of the incoming raw sewage. A volume, equal to the incoming raw sewage, is thus settled twice in both settling tanks and is filtered three times.

The method involves a "step" treatment by means of repeated mixtures with volumes of a higher degree of oxidation and by refiltration. The settling tanks serve not only as settling tanks but as equalizing tanks where sewages of different characteristics can average their degree of treatment.

Treatment Highly Flexible

Obviously the plan of manipulation can be rearranged and R_1 and R_2 may be greater than Q. R_1 could be taken from the sludge pocket of the settling tank, with the possibility of a semi-activated returned sludge action. However, R_1 has not been settled and will carry filter solids with it.

If the flow of raw sewage were completely discontinued, the primary settling tank detention period would not be more than doubled and filtration would continue at one-third its normal rate. Reduction in rate of flow of raw sewage cannot reach a stage where septic conditions might be encouraged, and due to continued circulation the flow reaching the primary tank is increasingly superior in quality.

During periods of discharge of strong sewages or wastes to the plant, the recirculated volume can be increased to create a greater volume of filter influent, and consequently further multiply refiltration and still not materially affect detention periods in the settling tank.

* Bio-filtration. The Dorr Company, New York City.

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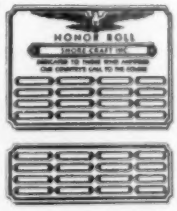
A lasting, personal tribute to those who have answered our Country's call.

Join the leading municipalities that are displaying this evidence of patriotic and human feeling. It cannot fail to win the respect of all who enter your buildings.

All over America, cities and towns are dedicating handsome, dignified Hayden Honor Rolls for the members of various departments, or schools, who have entered the services. This work of master craftsmanship has won acclaim as "America's most beautiful Plaque." The unusual Gold Star plate lends all the distinctive, dignified beauty that each hallowed name deserves. It is an ideal method of "departmentalizing" your Honor Roll—as each department wants its own plaque. "Fire Department," "Department of Education" or any other inscriptions, can be embossed on the master name panel in large type, with the name of your city in smaller type, either above or below it, at no extra cost.

The plaque illustrated is made of durable plastic, sprayed with genuine gold-bronze; hand rubbed to perfectly simulate real bronze. Finely sculptured in minutest detail. Master and Extension plaques each carry up to 16 names. You can add any number of Extensions below and to the side of the central unit. The inscription is carefully phrased to remain appropriate after the war ends. Original cost covers replacements with Gold Star name plates.



COST OF MASTER PLAQUE size 18" x 12" inscribed with your organization name **$22.50**

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QUALITY HAYDEN HONOR ROLLS

SEE OUR FULL PAGE ADVERTISEMENT IN THE JUNE, 1943 ISSUE OF FORTUNE MAGAZINE

E. J. HAYDEN & CO., INC.
23 EAST 21ST STREET NEW YORK 10, N. Y.

Wartime Water Rates--II

The second installment of THE AMERICAN CITY'S *latest study on water rates. Of the 11 water works listed, 6 reported a general lowering of rates, 3 registered no change, and 2 showed increases. Of these, one reported that refuse collection costs were carried by the water income.*

Meriden, Conn.

Rates:

(Bills are rendered semi-annually)

FIRST TAXATION DISTRICT

First 15,000 cu. ft. ..... 12½c per 100 cu. ft.
All in excess ..... 7½c " " " "
Minimum charge $4.00

SECOND TAXATION DISTRICT

First 15,000 cu. ft. ..... 11¼c per 100 cu. ft.
All in excess ..... 7½c " " " "
Minimum charge $3.50

General Data:

Populaiton served, 36,000
Services, 7,690
Meters, 5,338
Hydrants, 600
Miles of mains, 115
Supply three small lakes
Treatment, chlorine and copper sulphate, 50% filtered
Average consumption, 4 mgd
Plant capacity, 10 mgd

Consumer Costs Per Month:

	1st Dist.	2d Dist.
3,000 gal. (400 cu. ft.)	$0.67	$0.58
5,000 " (667 " ")	0.83	0.75
10,000 " (1,333 " ")	1.67	1.50

These rates simplify those published in January 1935. The Water Department is operated independently of the city government. At present it produces an annual profit of about $50,000.

C. P. PRANN,
City Engineer.

Riverside, Ill.

Rates:

First 2,500 cu. ft. ..... 28c per 100 cu. ft.
2,500-17,500 cu. ft. ..... 26c " " " "
17,500-37,500 cu. ft. ..... 25c " " " "
All over 37,500 cu. ft. .... 23c " " " "

10 per cent discount allowed for prompt payment.[2] Bills on a quarterly basis.

General Data:

Population served, 8,300
Meters, 2,118
Supply, artesian wells
Treatment, chlorination only
Tap water, 292 ppm $CaCO^3$
Average consumption, 600,000 gals. per day
Miles of main, 28
Hydrants, 287

Consumer Costs Per Month:

3,000 gal. (400 cu. ft.) $1.01
5,000 " (667 " ") 1.69
10,000 " (1,333 " ") 3.37

Costs are approximately 12 per cent below those published in October 1940, THE AMERICAN CITY. Present indications are that the water department will be able to hold its own against rising costs. Lower operating costs have been effected because of reductions in staff and in our program of extensions and improvements.

G. L. OPPER,
Village Manager.

Washington, N. C.

Rates:

First	1,000 cu. ft.	$0.25	per 100 cu. ft.	
Next	" " "	0.20	" " " "	
Next	" " "	0.15	" " " "	
Next	2,000 " "	0.10	" " " "	
Next	5,000 " "	0.09	" " " "	
Next	10,000 " "	0.08	" " " "	
Next	80,000 " "	0.0675	" " " "	
Next	100,000 " "	0.06	" " " "	

Minimum bill of $1.00 allows 400 cu. ft.

General Data:

Population served, 7,000
Services (all metered), 1,702
Supply, deep wells
Treatment: aeration, chlorination, partial softening
Average consumption, 0.7 mgd
Plant capacity, 1.0 mgd
Number of hydrants, 106
Miles of mains, undetermined

Consumer Costs Per Month:

3,000 gals. (440 cu. ft.) $1.00
5,000 " (667 " ") 1.67
10,000 " (1,333 " ") 2.16

Costs represent reductions of 16 to 20 per cent over rates published in January 1940 issue of THE AMERICAN CITY, and the present indication is that the rates will produce a sufficient income despite present rising costs.

D. T. SMITH,
Superintendent.

Little Rock, Ark.

Rates:

First	13,300 cu. ft.	25c	per 100 cu. ft.	
Next	20,000 " "	20c	" " " "	
"	32,000 " "	15c	" " " "	
"	58,000 " "	11½c	" " " "	
All additional	.....	6¾c	" " " "	

Minimum charge of $1.00 per month for ½-inch meter. Minimum for larger meters are proportional to the area of the meter based on this original charge
Hydrant rate $35. Private fire service with or without hydrants, no charge inside city limits. Fire rates outside the city limits are as follows:
Automatic sprinkler system, 1,000 heads or less, $27.50; all additional heads @ 2¾ each
Fire connection, $27.50
Private fire hydrants, each, $35.00
Standpipe openings, 1¼-inch or smaller, each $5.00
Standpipe openings, 1½-inch or smaller, each $7.50
Standpipe openings, 2-inch or smaller, each $12.50
Standpipe openings, 2½-inch or smaller, each $25.00

General Data:

Population served, 120,800 plus military establishments
Meters, 20,705
Supply, impounding reservoirs
Treatment, rapid sand filtration with pH adjustment
Raw water, 14 ppm $CaCO_3$, pH 6.2
Tap water, 26 ppm $CaCO_3$, pH 8.2
Average consumption, 8½ mgd
Plant capacity, 15 mgd
Number of hydrants, 1,036
Miles of main, 240

Consumer Costs:

3,000 gal. (400 cu. ft.) cost $1.00
5,000 " (667 " ") " 1.67
10,000 " (1,333 " ") " 3.33

This represents a drop of approximately 17 per cent over rates published in the March 1939, THE AMERICAN CITY for customers in the lower brackets. Revisions downward in the upper brackets are much less.

L. A. JACKSON,
Manager, Little Rock Municipal Water Works.

Spartanburg, S. C.

Rates:

First	2,500 cu. ft.	$0.21	per 100 cu. ft.	
Next	4,500 " "	0.185	" " " "	
"	20,000 " "	0.15	" " " "	
"	23,000 " "	0.115	" " " "	
"	150,000 " "	0.09	" " " "	
"	800,000 " "	0.081	" " " "	
All over	.....	0.063	" " " "	

MINIMUM CHARGES

For ⅝-inch meter $0.70, allows 300 cu. ft.
For 1-inch meter $1.47, allows 700 cu. ft.
For 1½-inch meter $6.00, allows 2,900 cu. ft.
For 2-inch meter $15.53, allows 8,300 cu. ft.
For 3-inch meter $40.58, allows 25,000 cu. ft.
For 4-inch meter $78.57, allows 60,000 cu. ft.
For 6-inch meter $128.07, allows 115,000 cu. ft.

Bills rendered monthly with 10 per cent discount allowed for prompt payment.
No hydrant rental charged.
Bi-monthly minimum $1.25.

General Data:

Population served, 75,000
Meters, 8,200
Supply, 1,000 mg impounding reservoir
Treatment, purification with lime, alum, chlorine, activated carbon and ammonia
Raw water, 30 ppm $CaCO_3$, pH 6.0
Tap water, 29 ppm $CaCO_3$, pH 7.0
Miles of mains, 350
Number of hydrants, 850
Average consumption, 7½ mgd
Plant capacity, 12 mgd

Consumer Costs (net):

3,000 gal. (400 cu. ft.) cost $0.76
5,000 " (667 " ") " 1.26
10,000 " (1,333 " ") " 2.52

Rates went into effect on July 1, 1943, and represent a drop of 5 per cent over previous billings and 16 per cent, in the first block, over those appearing in the May 1934, THE AMERICAN CITY.

R. B. SIMMS,
Superintendent of Water Works.

CHAPMAN'S TILTING DISC Comes to Rest Like a Flock of Feathers

When flow slows down, this unique check valve's only moving part . . . the balanced, hinge-pinned disc . . . is cushioned gently to a silent seat. No jarring or surging. No burst pipe joints. And practically no wear at all in the valve itself . . . which means that it will last indefinitely, without even any need for maintenance.

Head loss is reduced 65% to 80% over conventional type checks, and pumping costs are slashed as much as $95.00 per valve per year. On every count, Chapman's Tilting Disc is the check valve to specify for *your* operations, for it will not only see you through for the duration, but will continue to keep your costs down through many postwar years. Write for the whole story *right now*.

The Chapman Valve Mfg. Co., Indian Orchard, Mass.

CHAPMAN NON-SLAM CUSHIONED CLOSING **CHECK VALVES**

Ogdensburg, N. Y.

Rates:

FLAT RATE

One family dwelling, $1,000 assessed value	$5.00
Each additional $1,000 valuation	1.00
Bathtub and toilet	5.00
Each additional	1.50

(Other miscellaneous charges)

METERED RATE

First 500,000 gallons per month 15 cents per 1,000 gals.
Next 500,000 gallons per month 14 cents per 1,000 gals.
All over 1,000,000 gallons per month 13 cents per 1,000 gals.

Minimum charges are as follows:

½" meter	$ .75,	allows 5,000 gal.
¾" "	1.00 "	6,667 "
1" "	1.25 "	8,333 "

There is no hydrant rental nor sprinkler charge.

General Data:

Population served, $17,000
Services, 4,000
Meters (chiefly commercial), 300
Supply, St. Lawrence River
Treatment, slow sand filtration and chlorination
Water, 107 ppm $CaCO_3$
Average consumption, 2½-3 mgd
Plant capacity, 5-6 mgd

Consumer Costs Per Month:

(Based on metered rates)

3,000 gal.	(400 cu. ft.)	$ .75
5,000 "	(667 " ")	.75
10,000 "	(1,333 " ")	1.50

Metered rates represent a raise of five cents per 1,000 gallons but flat rates remain unchanged (THE AMERICAN CITY, April 1935). We hope to get along during the war and afterwards at our present rates, but it may prove difficult.

CHARLES H. LORD,
City Engineer.

Blairsville, Pa.

Rates:

First 3,000 gallons	$1.00	per 1,000 gals
Next 17,000 "	.40 "	" "
Next 30,000 "	.30 "	" "
Next 50,000 gallons and over	.20 "	" "

Minimum charge is $2.00 per quarter

Also in effect is a multiple-use rate where more than one family is served by one meter. This rate is 20c per 1,000 gallons higher than the regular rate; the first 3,000 gallons, however, remaining the same as regular rates.

Water rentals are charged to the tenants, but must be guaranteed by the property owner, and are due and payable quarterly on the first day of January, April, July, and October. If not paid within 25 days, 10 per cent is added to the bill, and if not paid within 30 days, the water may be shut off.

No charge is made for public or private fire hydrant rentals, nor for sprinkler heads on private fire lines.

General Data:

Population served, 6,000
Services, all metered 1,445
Supply, impounding reservoir
Treatment, chlorination only
Average Consumption, 0.6 mgd
Hydrants, 108
Miles of mains, 10

Consumer Costs Per Month:

3,000 gal.	(400 cu. ft.)	$3.00
5,000 "	(667 " ")	3.80
10,000 "	(1,333 " ")	5.80

The basic change in rates over those appearing in the December 1940, issue of THE AMERICAN CITY, is that the two large blocks have been revised and the quarterly minimum has been lowered. Since this is a gravity system, operating expenses are not large. The principal outlay is for bond retirement.

HARRY C. MCCREA,
Borough Manager.

Plant City, Fla.

Rates:

First 3,000 gals.	$1.25 (minimum)
3,000 to 50,000 gals.	.25 per 1,000 gals.
50,000 to 100,000 gals.	.20 " " "
All over 100,000 gals.	.10 " " "

SPECIAL GARDEN RATE (YEARLY)

$3.00 per month allowing 15,000 gallons
All over, $0.10 per 1,000 gallons

No credit is given the Water Department for water used from fire hydrants, street drinking fountains, park sprinklers, public buildings nor any other city service.

General Data:

Population served, 8,000
Services (all metered), 1,300
Supply, wells
Treatment, none
Average consumption, 0.5 mgd
Maximum capacity, 4 mgd
Number of hydrants, 143
Miles of mains, 22

Consumer Costs Per Month:

3,000 gal.	(400 cu. ft.)	$1.25
5,000 "	(667 " ")	1.75
10,000 "	(1,333 " ")	3.00

These costs represent a 5 to 15 per cent reduction over rates recorded in the April 1939 THE AMERICAN CITY. We do not anticipate any need to increase these rates.

E. S. TYNER,
Superintendent.

Dodge City, Kans.

Rates:

There is a minimum charge of $1.50 per house per month for water. The meter rates are as follows:

First 4,000 gals. at	$0.375	per M
Next 6,000 " "	0.25 "	"
Next 40,000 " "	0.10 "	"
Next 50,000 " "	0.08 "	"

If the bill is not paid on or before the 10th of the month, a charge of 10 per cent is added to the meter bill. If it becomes necessary to discontinue a service, a $1.00 charge is added.

There is no charge for either public or private fire hydrants.

General Data:

Population served, 9,500
Services (all metered), 2,555
Supply, deep wells
Treatment, none
Tap Water, 187 ppm $CaCo_3$
Average consumption, 0.9 mgd
Maximum capacity, 3.8 mgd

Consumer Costs Per Month:

3,000 gal.	(400 cu. ft.)	$1.50
5,000 "	(667 " ")	1.75
10,000 "	(1,333 " ")	3.00

Costs show a 15-30 per cent increase over rates published in June 1934 in THE AMERICAN CITY. The city hauls trash and garbage free for each customer paying the minimum charge.

REX REYNOLDS,
Superintendent, Water Department.

Corning, Iowa

Rates:

First 10,000 gals. per quarter	$0.50 per M
Next " " " "	0.45 " "
Next " " " "	0.40 " "
Next " " " "	0.35 " "
Next " " " "	0.30 " "
Next " " " "	0.20 " "

Meters read quarterly

General Data:

Population served, 2,162
Meters, 650
Supply—Two impounding reservoirs and Nodaway River
Treatment, aeration, rapid sand filter with lime and alum, activated carbon, ammonia
Tap water, 110-160 ppm $CaCO_3$, pH 7.6
Miles of mains, 6
Hydrants, 54
Hydrant rental, none
Average consumption, 0.1 mgd
Plant capacity, 0.45 mgd

Consumer Costs Per Month:

3,000 gal.	(400 cu. ft.)	$1.50
5,000 "	(667 " ")	2.42
10,000 "	(1,333 " ")	4.50

Both the water and light department have been self-supporting for many years and expect to continue to be so with no rate changes anticipated.

BRUCE B. WATTS,
Superintendent.

Grand Forks, N. D.

Rates:

First 1,000 gals. or fraction thereof, $0.50 per 1,000 gals.
Next 29,000 gals. or fraction thereof, $0.35 per 1,000 gals.
Next 70,000 gals. or fraction thereof, $0.20 per 1,000 gals.
Next 100,000 gals. or fraction thereof, $0.15 per 1,000 gals.
Excess of 200,000 gals. or fraction thereof, $0.12 per 1,000 gals.
Sprinkling (in season), $0.15 per 1,000 gals.

All water rates are due when bills are rendered. A penalty of 5 per cent is added on the 25th in District No. 1 and on the 10th in District No. 2. Meters are read each month. Water is shut off if bill is not paid 15 days after penalty and is not turned on again if all arrears, plus $1.00, are not paid.

A charge of $36.00 per hydrant per year is made to the city for public fire hydrants, either for fire or for street sprinkling. Private use of fire hydrants is permitted when water is needed, and a charge made at the regular rate, plus service charge of $1.50 for installing and removing the meter.

General Data:

Population served, 21,000
Services (all metered), 4,146
Supply, impounding reservoir
Treatment, lime-soda ash
Raw water, 233 ppm $CaCO_3$
Tap water, 91 ppm $CaCO_3$, pH 8.0
Average consumption, 1.7 mgd
Plant capacity, 4.0 mgd
Number of hydrants, 390
Miles of mains, 40

Consumer Costs Per Month:

3,000 gal.	(400 cu. ft.)	$1.20
5,000 "	(667 " ")	1.90
10,000 "	(1,333 " ")	3.65

Costs represent a reduction of 5 to 10 per cent over those published in the December 1935 issue of THE AMERICAN CITY.

R. M. JENSON,
Superintendent.

POWER for Higher Spraying —

—goes with STAMINA for Steadier Hand Work

You get *both* by using the park sprayer with the Simplest Pump.

When you compare the "Friend" pump with others, you see the reason for its better performance.

Having only 1/2 to 1/3 as many moving parts as other spray pumps, the "Friend" pump can be made proportionately stronger.

Naturally this pump operates successfully—and easily — under loads which are too much for pumps of ordinary design.

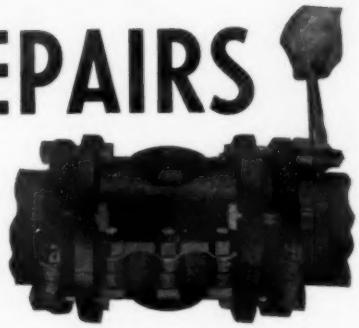
Find out which park sprayer has made the best records for constant high pressure . . . freedom from interruptions, and low upkeep cost.

(at left) 120-ft. Tree-spraying with one hand! Showing the power of the "Friend" Park Sprayer, and wonderful handiness of the "Friend" Shade Tree Gun.

"FRIEND" MFG. CO.
Gasport, N. Y.

"FRIEND" PARK SPRAYERS

For EMERGENCY . . . REPAIRS



For wartime emergency - breaks in pipe lines, this Doublex Simplex Split Sleeve will enable you to make quick, economical, effective repairs. You should have a supply of several of each size that you might need. Thousands in use, some for 14 years. Order now from shipping point nearest you as follows: Birmingham, Dallas, Kansas City, Los Angeles, Minneapolis and San Francisco.

AMERICAN CAST IRON PIPE CO.

BIRMINGHAM, ALA.

Dallas Houston El Paso Pittsburgh Kansas City
Chicago Minneapolis New York City Cleveland
Los Angeles San Francisco

The EDDY Hydrant

Eddy Fire Hydrants have many points that appeal to water-works men. For example:

A damaged valve can be replaced in a few minutes at slight expense.

Should the standpipe be broken, not a drop of water need be lost.

All hydrants are frost-proof.

These and many other points of excellence are thoroughly explained in our catalog, which it will pay you to study.

Also manufacturers of the well - known Eddy Valves

EDDY VALVE COMPANY

WATERFORD NEW YORK

Representatives

Jas. B. Clow & Sons, Chicago, Ill.
National Cast Iron Pipe Co., Birmingham, Ala.

Dipping Any Name from the Melting Pot

An Index That Gives You Myer or Mayer

QUITE a few years ago a Pittsburgh lawyer, in searching public records, mulled over the fact that names which sound alike but are spelled differently are usually difficult to catch up with in public files. Why not work out an alphabetical filing system based only on the consonants or essential structure of each name? Out of this idea emerged what is now known as the Remington Rand Soundex method of indexing.

Over ten years ago some city and county departments were using the Soundex system for their general index of names. Its virtue is that it puts the name you are looking for in one place, whether it's spelled Burns or Byrnes.

The system is as easy to use as the telephone book. If you want to find George Burke, you naturally turn to the "B" section of the index, and on the "B" Directory Page you will find the page number for all the "Burke" family—regardless of whether spelled Burke, Berck, Birke, Bork, Byrk, or Bhourque. Each name will be listed alphabetically in accordance with the first name, or by date of entry, as may be desired. Consequently, if your George "Burke" actually spells his name "Berck," you will find George Berck without further hunting. All these names are represented by the same page or section number, 620.

Here is how it is done. In reducing any name to its place in the index, any of these letters occurring in it are eliminated: a, e, i, o, u, w, h, y. The rebaining letters of the alphabet take the following numbers:

1.	b-f-p-v	4.	l
2.	c-s-k-g-j-q-x-z	5.	m-n
3.	d-t	6.	r

Pursuing this plan reduces names—

From	To	Page or Section Number
Birck	B rk	620
Bork	B rk	620
Burke	B rk	620
Byrk	B rk	620
Bhourque	B rq	620

In numbering, the initial letter of the surname ("B") is given no number. The number corresponding to r is "6," the letters c, k, or q all take the number "2." As every name is expressed in three digits, a zero is added to 62 making it 620. Thus page or section 620 in the "B" division will contain all the names that code the same as "Burke." Only name searchers can appreciate the tremendous time saving afforded by this logical, modern index, which is 97 per cent right the first time and has automatic cross reference for promptly locating the unique 3 per cent that are "different." The system is not phonetic, as will be seen by working out Bayer and Byer, both coding to number 600.

An open index, or one in which the pages are not bound as in a bound book, can be maintained up-to-date and in perfect sequence indefinitely by the use of the directory sheet which predetermines the paging.

The searchers of Soundex need know none of the foregoing mysteries. Soundex in action is merely an exclusive method of modern alphabetical filing. It is practical for all types of files and indexes, overcoming misfiling and unsuccessful reference due to incorrect or changed name spellings. Remington Rand installs the system ready for use.

"Soundexing the city of Baltimore's permanent registration record of 500,000 voters," according to John J. Nowakowski, Chief Clerk of The Board of Supervisors of Elections, "produced an alphabetical list in which names can be located by our clerk with almost unbelievable speed. These records are filed in 25 of the new Kardex Multi-Stack units, with slide-in doors which save half the floor space required by old-fashioned swinging-door cabinets. The Precinct Record cards were also Soundexed and filed in 500 Curved Prong visible binders."

The whole purpose of any system is to reduce drudgery and save time. Where the system is a card or book index of names, Soundex will force the searcher to look for a name exactly where the indexer or filer put it. Once you install this system, it is easy to maintain it and expand it without limit.

THERE ARE MANY WAYS TO SPELL THESE COMMON NAMES:

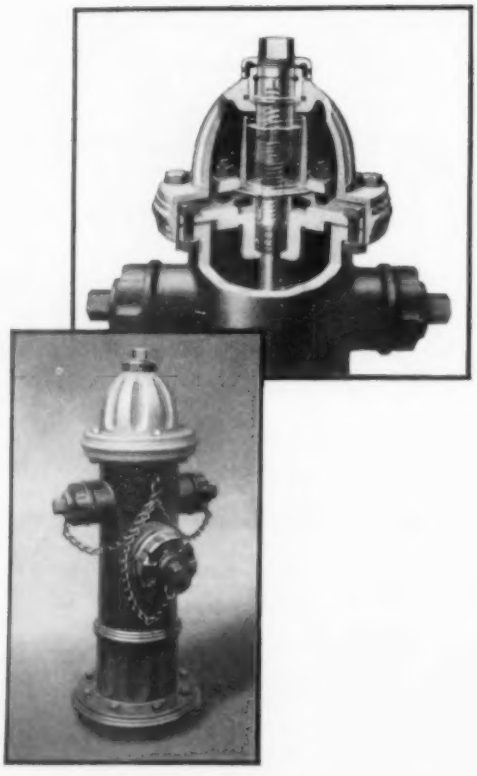
BAER	45	JOHNSON	6	NEWMAN	13
BAILEY	25	KEAN	11	NICOLLS	8
BAKER	17	KEELER	10	RYAN	8
BOLAN	13	KELLY	14	SHAFER	9
BURKE	40	LEHMAN	18	SHERMAN	14
COUSINS	13	MAILE	36	SMITH	13
GLASER	12	MEYER	10	SNYDER	29
HYATT	11	MILLER	8	WEISS	17

Junior Commandos

JUNIOR commandos at Williston Park, Long Island, N. Y., are blitzing the home front problems of salvaging waste materials and are developing a sense of responsibility toward the war among boys and girls of 7 to 14 years of age in this Long Island community.

With an original membership of seven, this group is increased now to a total of 68. No dues are required, but each member gives a few hours each month to help salvage vital materials. Members call on householders and ask for waste material that ordinarily would be thrown away. During the past year they have piled up the following record for salvage:

Waste paper	48,035 lbs.
Scrap metals	627 lbs.
Rags	615 lbs.
Fat drippings	645 lbs.
Rubber products	50 lbs.
Victrola records	275 records
Silk stockings	680 lbs.



TOO LATE!

The time to replace balky, outmoded fire hydrants is before the fire—not after the damage is done. Rusty stem threads, dry packing, tangled nozzle cap chains, worn out main valves, and barrels broken suddenly in traffic smash-ups (and which have to be dug up) all contribute to the inefficiency of your fire department and help fire losses to mount . . . You can obliterate all these faults in one sweep by installing MUELLER-COLUMBIAN hydrants.

Consider just one outstanding feature—the self-oiling top. There is an oil reservoir in the bonnet section which keeps the stem threads and working parts constantly immersed in oil. In addition, each time the hydrant is used the oil is force-fed up to the operating nut. There can be no rusting or sticking. The packing is kept moist with oil and can never dry out. The unique ball joint construction above the packing positively prevents binding of the stem. No water ever enters the bonnet. Operates easily—readily serviced.

There are many other superior points in the MUELLER-COLUMBIAN. Ask about them. Give your fire department the best. Insist upon MUELLER-COLUMBIAN fire hydrants.

FOUNDED 1857

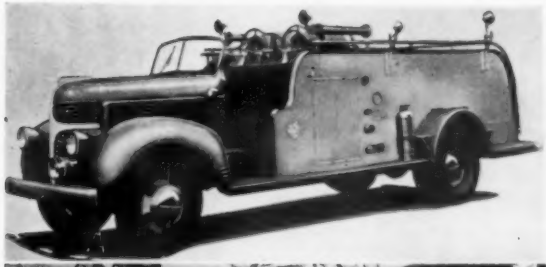
MUELLER CO.

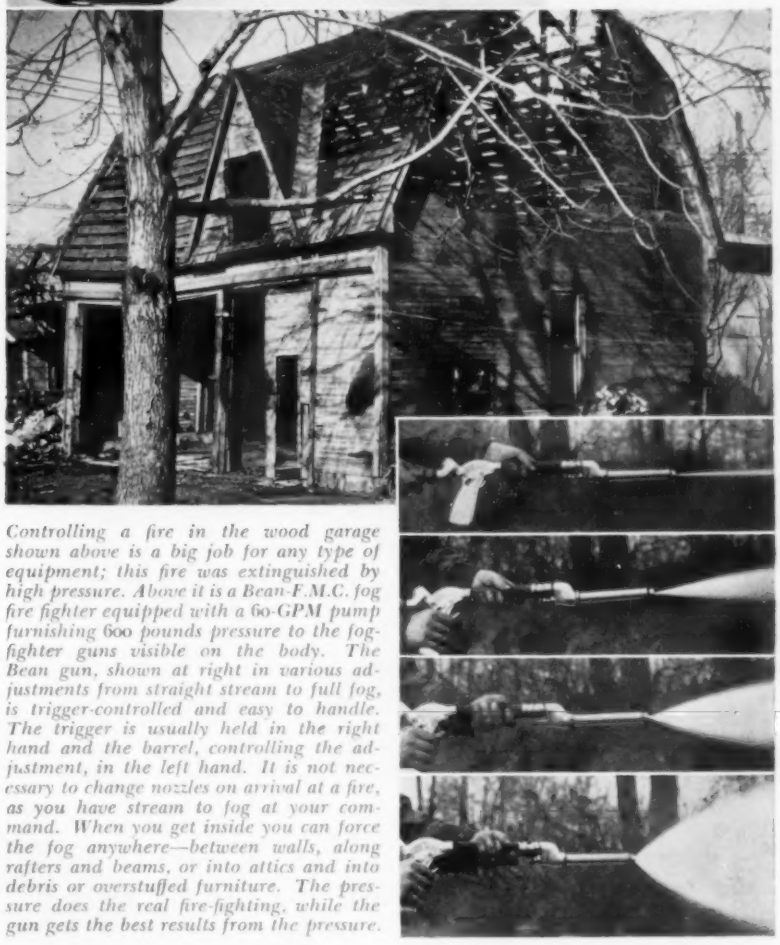
CHATTANOOGA, TENN.

High Pressure Water

Using 600 PSI at the Nozzle

By R. G. PULVER
Fire Apparatus Division
John Bean Mfg. Co.
Lansing, Mich., San Jose, Calif.





Controlling a fire in the wood garage shown above is a big job for any type of equipment; this fire was extinguished by high pressure. Above it is a Bean-F.M.C. fog fire fighter equipped with a 60-GPM pump furnishing 600 pounds pressure to the fog-fighter guns visible on the body. The Bean gun, shown at right in various adjustments from straight stream to full fog, is trigger-controlled and easy to handle. The trigger is usually held in the right hand and the barrel, controlling the adjustment, in the left hand. It is not necessary to change nozzles on arrival at a fire, as you have stream to fog at your command. When you get inside you can force the fog anywhere—between walls, along rafters and beams, or into attics and into debris or overstuffed furniture. The pressure does the real fire-fighting, while the gun gets the best results from the pressure.

THE Bean High-Pressure system fills a gap in fire-fighting that has existed for many years. The fire department's job is to extinguish fires with the greatest speed and with least possible fire and water damage. High-pressure fog will do that and some things that other systems have been doing and do it better and faster. You can extinguish some types of fires with high-pressure water fog that you can put out in no other practical way.

For a number of years much has been said about high pressure and high-pressure fog. For a number of years pressure of around 150-200 pounds was considered high pressure and was high pressure when compared with the ordinary pressures. That same 200-pound pressure does a better job than low pressures, and no one can be criticized for using it.

Bean High Pressure really is high pressure, giving 600 pounds pressure at the gun tip. Naturally you are somewhat interested in the background of high-pressure water for fire-fighting. It was *originated* by the John Bean Manufacturing Co., Division of Food Machinery Corporation, of Lansing, Mich., a number of years ago.

A few years ago they started to develop it further and were making satisfactory progress, both in the sale and actual use, when the war banned sale of fire trucks for municipal use, without exceptional priorities.

About this time the Army, Navy, and Marine Corps presented their problem of gasoline fires. They outlined in general what they needed in fire trucks. High octane gasoline from plane crashes, often in large quantities in combination of pools, spread out over large areas with a *crashed plane in the middle of it.*

It is believable that if high-pressure fog will control gasoline fires, it will give a good account of itself on structural fires. A 600-pound gun pressure finely atomizes the water and produces billions of fine droplets, which expose water surfaces to the fire for absorbing heat many times that of low-pressure water. It is easy to believe that all of the water absorbs its maximum amount of heat. Having absorbed its maximum amount of heat and having passed off in the form of vapor, there could be little or no water left to cause water damage.

Pressure gives you another aid which we call penetration or, and in some cases, *demolition.* When fog is used and closely held together in the form of a carrying stream or straight stream, it has the power to reach the fire from a safe distance and to penetrate into debris, into partitions, as well as into the cracks in charred wood to get to the base of the fire. It will knock off charred wood to get at hidden fires. Every type of fire-fighting action is available in high-pressure fog except flooding.

Firemen who handle high-pressure guns on fires tell us that it gives them

A decade of *Licenseal* service by MEYERCORD

Village of
GLEN ELLYN
ILLINOIS

August 25, 1943

The Meyercord Company
5323 West Lake Street
Chicago, Illinois

Gentlemen:

There is so much opportunity at the present time in every walk of life to offer complaint that no one should overlook expressing appreciation for services well rendered.

We adopted the "Licenseal" form of vehicular license emblem for use on passenger cars and trucks ten years ago, and recently made use of the same type of emblem for the bicycle license. During this period we have used your products exclusively and have at all times enjoyed such excellent service that it is most fitting that some word of commendation should be passed on to you.

The quality of your service, including materials for and suggestions of design of decalcomanias is but one factor that has retained this close business relationship. The attention given to every detail, whether order was small or large, is most gratifying. This personal service, together with satisfactory pricing truly are the stepping stones to your progress.

We extend our best of wishes for that continuing success which your products so much deserve.

Respectfully yours,
VILLAGE OF GLEN ELLYN
J. R. Stewart
Village Clerk

jre;gr

1943
GLEN ELLYN
CANCELLED

Meyercord Licenseals cannot be lost, stolen or counterfeited . . . and although easy to apply cannot be removed without being destroyed. Investigate this modern, low-cost method of vehicle tax identification. Licenseals are durable, washable. No metal to flap or squeak. No rivets, bolts or screws required. Free designing service. For complete information address Department 5810.

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THE MEYERCORD CO.
5323 WEST LAKE STREET • CHICAGO 44, ILLINOIS

great protection from the heat and greater visibility in front. They often tell of clearing the smoke out of a room or basement in a few seconds with the fog.

Speed in getting in to fight the action is just as important as any part of fire-fighting. In carrying your own water supply and high pressure with you, you are actually fighting the fire within a few seconds after you arrival.

So far we have discussed the good qualities of high-pressure fog, so now let's consider the limitations of high-pressure fog, if any. It has practically no limitation as to classes of fires that can be extinguished by water. You may have been wondering just how large a fire can be put out with high pressure. Frankly, it is not known, because every fire that has been tackled so far with a 60-gallon high-pressure unit has been controlled. Quick action with high-pressure fog will keep fires from becoming big fires, which is the aim of all fire departments.

Each gun is a one man job—so with a man on each gun you can put out large fires. We had a case of a rural schoolhouse fire where the driver took one gun and a farmer who had never seen one before took the other and put the fire out.

In the future there will undoubtedly be some revision of fire-fighting technique so as to take advantage of what high pressure offers. In the meantime think about how you can add it to your present set-up when the time comes.

How an Aviation Council Is Functioning

By GEORGE E. COLLISSON
Secretary-Manager,
Denver Chamber of Commerce

ONE of the greatest possibilities for the development of Denver after the war is in the field of aviation.

Every one realizes that aviation, at the war's end, will face a brilliant future; one that will probably transcend anything most of us can believe at this time. Any extension of air routes, both in the nation and internationally, is certain to involve Denver.

The Aviation Council of the Denver Chamber of Commerce is currently participating in a program designed to establish Denver's position in post-war aviation.

In advancing this program the Council, composed of leaders active or interested in the industry, under the chairmanship of Thomas P. Campbell, is cooperating with various branches of the city government, the Denver Planning Commission, and the University of Denver in a thorough study and investigation of the most modern developments of aviation planning.

Results of Field Trip

As part of the investigation, the Denver Chamber of Commerce, through the Aviation Council, is financing a series of trips to various important aviation centers, by Carl Feiss, Director of the Denver Planning Commission. On his first such trip Mr. Feiss interviewed officers of airlines and important airplane manufacturers, together with civilian and military authorities. The Planning Commission and Mayor Benjamin F. Stapleton authorized the trip as part of Mr. Feiss' duties. Results of this first trip can be summarized as follows:

1. That the future of domestic aviation in the United States, and particularly that of cities located on possible international routes, depends on international agreements made after the war.

2. That the success of any aviation program in an area depends on local interest and support and the close participation of local commerce and industry in the economic programs of the air lines.

3. That it is too early to predict or even estimate the effect of technical developments such as radar, the helicopter, new fuels, etc., on the present design of airfields; and that it would seem wise at this stage of the game to move carefully and not over-expand.

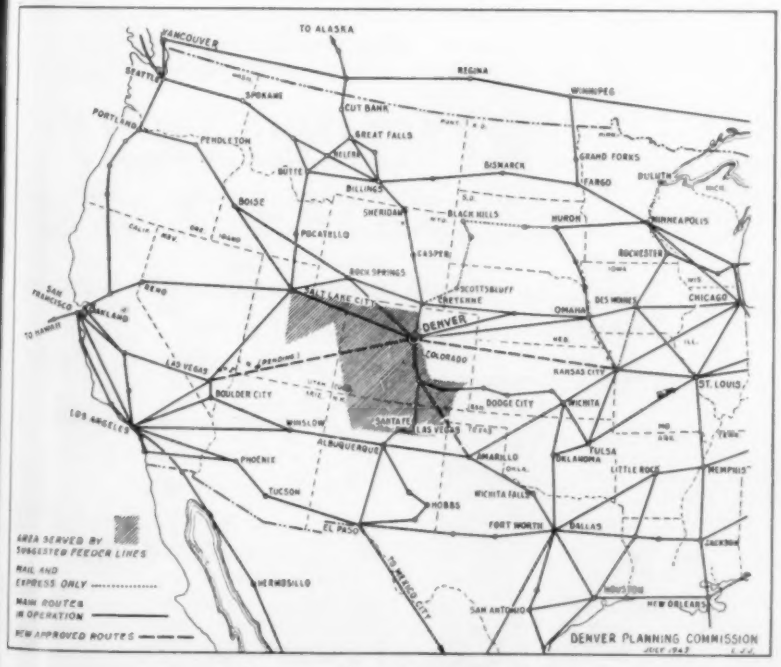
4. That feeder lines from small cities and outlying rural communities to central points can become important economic advantages, both to the smaller city and to the central area.

5. That the number of airports needed by a community is not determined by the number and size of the planes, but rather by the functional use of the planes. Denver is taking the lead in the acquisition of a new field to separate the scheduled from the non-scheduled flight. It is to be expected that feeder lines, when developed, will be coordinated with scheduled flight patterns.

6. That in the functional subdivision of fields it is too early to estimate the needs of aerial freight terminals, since at present no strictly civilian all-freight planes are in use.

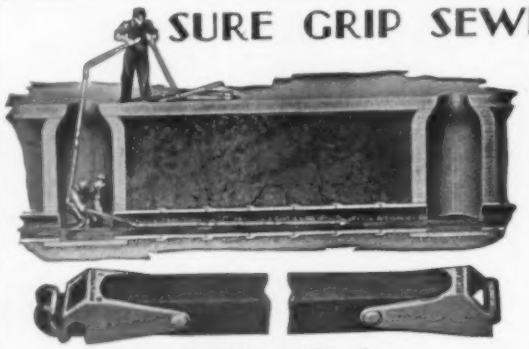
7. That the city must prepare, at the earliest possible date, for air traffic hazards through a close relationship with the Civil Aeronautics Authority on the establishment of carefully chosen routes for various types of traffic in and around cities, and that at an early date restrictions and controls be developed in order to avoid the hazards which impend if aviation expands as anticipated after the war.

8. That in cities where planes are not fabricated but where trans-shipment, passenger service, repair and modification constitute the major aviation activity, a supporting cast in aeronautics research and education may become an important function of the city.



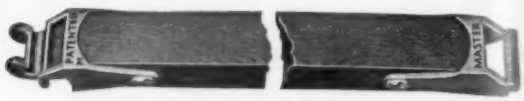
Denver as the Central West Air

SURE GRIP SEWER RODS and ACCESSORIES



The REGULAR, a light rod,
Fir stock 1⅛ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.



The MASTER, a heavy duty rod,
Fir stock 1½ x 1½ inch square.

Write for catalog on complete line of sewer cleaning equipment.

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NAPPANEE, IND.

Designers and Builders of all types of
REFUSE INCINERATORS
Over 50-Yrs. Experience in Fire Brick Construction

Experts in Repair and Operating Problems

GEO. ALLEN & SON
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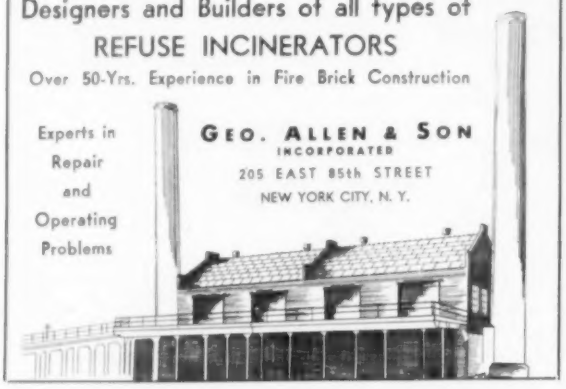
205 EAST 85th STREET
NEW YORK CITY, N. Y.



CUT MAINTENANCE COSTS 75%

Concrete slab maintenance costs can be reduced as much as 75% by the Koehring Mud-Jack Method. The Mud-Jack raises sunken concrete walks, curbs and gutters, driveways, streets, and airport runways eliminating reconstruction costs. Write for the new Mud-Jack Bulletin which is both illustrative and descriptive.

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KOEHRING COMPANY
Milwaukee, Wisconsin

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CENTRIFUGAL PUMPS
FIRE HYDRANTS
A.W.W.A. GATE VALVES

Manistee single-stage, double-suction pumps, 75-20,000 g.p.m. capacity

Manistee multi-stage pumps, 50-3500 g.p.m. capacity with heads up to 1600 feet

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MANISTEE IRON WORKS CO.
MANISTEE MICHIGAN

CONNERY'S
HEATING KETTLE
Style B-2

reduces street maintenance costs by heating tar and asphalt with SPEED AND SAFETY.

This oil burning kettle is equipped with steel roller-bearing wheels. Sizes: 30, 80, 110 and 165 gallons.

Write for catalog showing our full line of tar and asphalt heating kettles, spraying attachments, pouring pots, etc.

Connery Construction Co. 2nd & Luzerne Streets, Philadelphia, Pa.

A view of the Annapolis sewage-treatment plant.

What Elutriation of Sewage Sludge Can Do

An Operator Tells Why the Benefits of This Sewerage Development Need Not Be Confined to Large Metropolitan Plants

By C. G. Weber
Superintendent
Sewage-Treatment Works
Annapolis, Md.

If you want to start an argument among sewage-plant operators, one easy way seems to be to mention sludge digestion and elutriation. Those engineers and operators familiar with the operation of this process are strongly for it, some of those less familiar with it are either for it or against it, and a few remain on neutral ground. There is no question about the definite economics of this sludge-disposal method in larger installations. However, the grounds for argument become more definite as the size of the treatment plant decreases, for then the problem of relative economies between the various methods of sludge disposal becomes definitely more difficult.

Annapolis, with its sewage-treatment plant serving about 25,000 population, is an outstanding example of the solution of this important question. Here is the experience we have had with elutriation at this plant. As the logical result of this experience I am one of its supporters. You will understand this after reading a little further. However, you will have to agree that we made the process prove itself before adoption.

The Annapolis plant has been operating for almost seven years. Constructed back in 1936, it consisted of bar screens, pre-chlorination, and primary sedimentation with separate sludge digestion. One vacuum filter of about 65 square foot area is used to dewater the final sludge. The plant has a capacity of 3 mgd.

The operation of these filters was one of the things that bothered us. During the first years of operation, we dosed the sludge with 7.7 per cent ferric chloride and 21 per cent lime. Chemicals were less expensive then, but nevertheless our chemical costs hit the uncomfortably high figure of $7.90 per ton of dry filtered sludge solids.

We used top-flight wool filter cloth too. Our wives occasionally visited the plant and looked enviously at those potential blankets that we wrapped around the filter drum. And it didn't make any of us particularly happy to see how quickly this cloth would blind. One dressing handled about 12 tons of dry sludge before having to be acid-washed. We would get no more than 50 hours of filter service per cloth dressing.

Obviously this high chemical expense stuck out on our operating sheet like a sore thumb. No conscientious superintendent would tolerate this condition without making some effort to remedy it.

Mechanical Mixing

We first decided to abandon air mixing of the chemicals and try a mechanical mixer; this gave us encouraging results. We were able to dewater 36 tons of solids per run rather than 12, and made each filter dressing last for 153 hours rather than 50. We also found that we could lower the dosage of ferric chloride to about 7¼ per cent and eliminate the lime altogether—thereby cutting the cost of chemicals to around $5.25 per ton of digested solids, a more reasonable figure, but still definitely high. Of course, we didn't have to use as much expensive, high grade filter cloth either.

Elutriation Tested

Later, in 1939, A. L. Genter, Baltimore consulting engineer and the grandaddy of the elutriation process, interested us in this method as a way to further reduce our chemical costs and improve filtering operations. At that time there were relatively few elutriation installations operating and these

Cities go modern. Every man has a motor car—everything goes streamlined except snow clearance. Snow clearance remains in the horse and buggy stage!

When the war is over no city can afford to be without Snogo. Take the case of Bristol, Conn., a typical city of 2,800 people with typical conditions and a budget no bigger than any other similar city. Snogo saved Bristol $2,700.00 a day over hand shoveling. Snogo loads a truck every 10 to 20 seconds, or better. Streets are cleaned to the curb. There are no drifts pushed into driveways or walkways. No heavy banks are left in gutters, and no blanket of snow remains to thaw and freeze into dangerous ruts.

The public is entitled to and is going to demand better snow clearance. Plan to make your city one of the first to have clean winter streets after the war.

KLAUER MANUFACTURING CO., DUBUQUE, IOWA

SNOGO

There is a size Snogo for every budget.

were in large plants. While we were willing to be convinced, we nevertheless demanded that the process prove itself and arranged to elutriate the sludge half the time and filter the balance directly. The work of refitting our plant to handle elutriation was not particularly difficult. It required the remodeling of a sludge storage tank, equipping it with a mixing trough and refitting the bottom of the tank so that it sloped to the center. We also installed a swivel pipe to draw off the effluent from the elutriated sludge.

Using the two processes alternately, we were surprised to observe how much more easily the filter dewatered the sludge after elutriation. Less chemicals were required and a greater filter yield resulted. The operation proceeded more smoothly, and the filter cake looked more firm, thick, and easy to handle.

These tests convinced us. A little simple eighth grade arithmetic showed that vacuum filtration without this pretreatment was an expensive luxury. Consequently, the following year, 1940, we went all the way and elutriated the entire production of sludge. The only experimenting we did was to try out different sources of liquid for the elutriation process. We got our best results by using effluent from the Dorr Clarifier, although we tried well water and salt water from the bay. This use of settled sewage effluent gives us the added advantage of not introducing any greater bulk of liquid to be handled during treatment.

Under our present arrangement, the sludge from the digestion tanks enters a 50-gallon drum mounted on the remodeled sludge storage tank, and mixes with the settled sewage effluent used for elutriation. The combination then goes into the washing trough equipped with baffles to encourage agitation. The mixture then flows into the body of the hopper-bottomed storage tank and remains there long enough for the sludge to separate. The clear supernatant then returns to the primary settling tank, while the sludge is drawn off for conditioning and filtering.

We had to supply one small Homelite pump to draw off the elutriant from the Dorr Clarifier. The sludge comes from the digestion tank by gravity and can be controlled by a telescopic sludge valve.

Interestingly enough, we no longer had to use the mechanical mixer to condition the sludge with chemicals. All that was required was to introduce a small stream of ferric chloride into the washed sludge by the Omega feeder and allow them to mix themselves. Enough agitation is accomplished while the sludge enters the mixing drum to do the trick.

Regarding present operations, we find we now need to add only 1.7 per cent ferric chloride to condition the sludge for a 7.5 lb. filter yield. Although the price of this chemical has advanced by more than a third, we are no longer dependent on its use. We are now able to use a cheaper commercial ferric sulfate (Ferri-floc) for about the same filter yield. As a consequence, we have held our chemical costs to the unusually low figure of less than one dollar per ton of sludge solids. This is less than 15 per cent of our 1937 chemical costs, notwithstanding the advance in the market price of chemicals since then. As a matter of fact, after installing and using elutriation, our first year's savings in chemical costs alone paid all expenses involved in making the change.

This doesn't mention other economies that we were also able to effect. Due to our increased filter yield—about 7.5 lb. per sq. ft. of filter area per hour in sludge solids—we operate the filter but 145 days yearly, and then but about 5 hours daily. This means a material saving in power. The expensive wool filter cloths have given way to an ordinary cotton sheet blanket that you can buy in any dry goods store. Using it, we are able to filter around 300 tons of sludge per dressing, in comparison to the 12 tons that we handled under the original design, or 36 tons with the mechanical mixer. Consequently we get around 1,200 hours of service per run in place of 150. This is not to mention the decreased cost of sludge blankets. We buy the cotton blanket at around 15 cents a yard, in comparison to 45 cents that we would have to pay for the wool.

This is the story of elutriation at Annapolis. It covers operation at an average plant, using a relatively simple treating process and handling a representative type of sewage. It does not require adding any more operators to keep it under control or any additional laboratory tests. From our point of view it simplified operation rather than complicated it.

The elutriation or washing of sewage sludge prior to filtering is one of the more interesting of recent sewage-treatment developments. Here in brief is the record of improvement that Mr. Weber chalked up when he adapted this system to his plant at Annapolis.

	Before Elutriation	*After Elutriation*
Chemical costs	$7.90 per ton of dry filtered solids	$0.96 per ton of dry filtered solids
Cloth life	150 hours	1,000 hours
Acid washing of cloth necessary	yes	no
Chemicals used	Ferric chloride, lime	Ferric sulphate
Uniformity of sludge	Unreliable	Reliable

The author takes a hand in the operation of his vacuum filter.

WOOD PIPE CARRIES ON

while steel saves lives

More and better equipment on the fighting front means a shorter war and fewer American lives lost. You can help by saving vital metal wherever possible.

One way is to substitute ARMCO Emergency Wood Pipe for drainage structures made of critical materials. This sturdy pipe requires no steel sheets and bands, wire mesh or metal reinforcing. It is easy to handle, saves on transportation and has ample strength to meet engineering standards. When the emergency is over, a corrugated metal pipe may easily be threaded through or jacked around the wood structure.

ARMCO Corrugated Metal Pipe is only on temporary "leave of absence." It will be back after the war with its flexible strength, long lengths, tight joints, and low installation costs.

Meanwhile, steel must not be used in any drainage structure unless engineering integrity demands it. Remember it's not just pounds of metal you are saving—it represents ships, trucks and tanks delivered to our fighting fronts. As desirable as ARMCO Ingot Iron culverts are, you'll find ARMCO Emergency Pipe a practical substitute. Write for data. Armco Drainage Products Assn., 135 Curtis St., Middletown, O.

ARMCO ARMCO **EMERGENCY PIPE**

Combatting Building Graft by the "Industry Technique"

By ABRAHAM WEINMAN
Legal Staff,
Department of Investigation
New York City

TRIBUTE to building inspectors has, through long-standing custom and usage, been accepted as an inevitable item in the cost of building construction. In some communities such payments have to all intents and purposes actually achieved the status of a common law tax. Yet, these unauthorized levies not only increase building costs but may have serious, irreparable consequences—as witnessed in the recent Boston night club fire. Despite the manifest evils of this practice, corruption by building inspectors has been carelessly tolerated in most cities, and has even been respectably characterized as "honest graft."

In New York City, Commissioner William B. Herlands' Department of Investigation has recently laid down the technique for combatting and terminating the reign of corrupt building inspectors. Its investigations have already led to the dismissal from office of 64 elevator and plumbing inspectors and 6 oil burner inspectors, enjoying a "take" estimated at a half million dollars a year.

The pattern of inspectional corruption in the building trades is too well known to require repetition. For every inspection required in the course of construction of a building a fixed "fee" is paid. It has been estimated that practically every building job requires about 15 inspectors from the time the plans are filed to the final official approval of the building as fit for occupancy.

Frequently a corrupt chief inspector demands a weekly "pay-off" from the men he assigns to a particularly lucrative building district. Sometimes even the building applications must be typed and notarized by a "connected" person. The devices for corruption are limited only by the ingenuity of the inspector. After the completion of the building, failure to repair facilities may also be conveniently overlooked for the right "price."

Charter Provision Effective

Mayor LaGuardia and Commissioner Herlands have been aided in their drive to stop this system of graft, inherited from the days of lush and careless municipal administration, by a section in the New York City Charter that makes it a misdemeanor for an inspector to accept gratuities from "any person whose interests may be affected by his official action." Prior to the new 1938 charter no such general provision against this "honest graft" could be found in the law. The provisions of this statute, aided by the investigating department's powers of subpoena, were the arms of the pincer movement against building graft.

The drive is well on the way to success. Grafting inspectors in the various departments supervising the building and allied trades have been forced to resign or have been dismissed after disciplinary hearings and action against them. From top to bottom the building and allied industries are being cleansed of the corrupt officials who have preyed on these industries.

Testifying Without Fear

Contractors who had previously been at the mercy of these inspectors are testifying without fear. This has been accomplished by offering these business men private hearings and an assurance that they will not be called upon to testify unless a substantial part of their industry cooperates. This "industry" technique works. The formula has effectively solved the problem of the business man who fears that, should the "clean up" drive fail, he, as an individual witness, will be exposed to the inspector against whom he had testified. In effect, the affected business men of the city are themselves doing the housecleaning which individually they were powerless to cope with. The courts have sustained every case of such removal of a corrupt inspector.

By organizing the business man on behalf of clean government, by using him as a witness only when scores of his competitors have also testified, a flying wedge has been created against corruption. Business men know that they have an official agency which will recognize their problems and cooperate with them on a practicable basis. The home buyer and apartment tenant need no longer be the ultimate victim of these practices which serve to increase building costs. The dirty hand of invisible and corrupt taxation is being effectively manacled. Prompt and vigorous investigation of these conditions by municipal officials, and the application of the "industry technique" is a foolproof formula for breaking the inspectors' racket.

Housing Costs and War Costs

THAT decent housing for every American family will be an economic possibility for the nation in the post-war years, is evident from figures released on September 11 by the Bureau of the Census. These estimate the total 1940 value of all dwelling units in the United States at less than 100 billion dollars ($95,439,309,530, to be exact).

On September 17 President Roosevelt estimated the cost of the war to the United States from May 1940 to date as $128,123,000,000, with a present bill of some $250,000,000 *per day*. In other words, at the current rate of expenditures, another year of war will cost us about as much as the value of all the 37,325,470 dwelling units owned or leased in the United States in 1940.

Of this 1940 total, urban dwelling units accounted for 21,616,352, of which 7,714,960 were owner-occupied, 12,881,540 tenant occupied, and 1,019,952 vacant. The average capital value of urban units owner-occupied was estimated as $4,139 with a rental value of $36.75; tenant-occupied, $2,751 and $27.01 respectively.

If some of the less worthy of these dwelling units were to become war casualties, of course we would rebuild them with sounder structures in well-planned neighborhoods. When victory comes it could be done anyway, both as a source of useful employment and as an aid to the finer civilization for which this destructive war is being fought.

THIS IS WAR!
Make YOUR Equipment LAST

5 "Timely Tips" for Snow Plow Users

1. Keep shoe wear plate (or casters if used) extended far enough to prevent plow from riding on cutting edge—it's cheaper to buy new shoes than new blades; saves metal, too.
2. Watch your hydraulic cylinder fluid—be sure there's enough—thin it out in sub-zero weather for maximum efficiency.
3. Be cautious — when snows cover fire plugs, driveways and R.F.D. mail boxes, "chart" your course—severe impact can damage the truck, tractor or patrol grader, as well as the plow.
4. On reversible, one-way and land-side plows with tripping blades, *watch the spring tension* on the trip — always have tension adjusted so that blade will return to cutting position after struck object is passed. If blades stay tripped, several inches of snow are by-passed and remain in street.
5. At the end of season, when plows are no longer needed, restore paint to parts from which it has worn off to prevent rust. Save the surface and you increase the service!

BAKER

The Modern Tractor Equipment Line for
EARTH MOVING
LEVELING AND GRADE BUILDING
SNOW REMOVAL
ROAD MAINTENANCE

Traffic Control and Facilitation

Conducted by Traffic Control & Facilitation Committee, Institute of Traffic Engineers, 60 John St., New York
Merwyn Kraft, Chairman, Karl A. Bevins, Jay A. Czizek, A. Wallace Gove, Ross C. Harger,
Walter H. Klapproth, Theodore M. Matson, William R. McConchie, Henry W. Osborne,
Earl J. Reeder, William J. Weller

Buffalo Has Planned for Post-War Traffic Control

Parking Revenue: 40 Months, $236,247

By Henry W. Osborne
Traffic Advisor

On about September 1, 1940, 1,099 parking meters were installed in the central business district in Buffalo, N. Y. These meters cost $51,739, but by June 1, 1941, had fully paid for themselves.

Between September 9, 1940, and February 5, 1943, the city received a revenue of $236,247. Deducting the original cost of $51,739, a maintenance cost of $7,400, a collection cost of $4,000 plus an additional $3,000 contributed by the Sign Division of the Police Department in maintaining the pedestals of the parking meters, the city has a net profit of $170,108. This money has gone into the general fund.

To protect the $51,739 investment of the city, more moneys should be allocated for upkeep. In the last two years, only $7,400 was appropriated to maintain 1,099 devices. This is approximately a 3.7 per cent maintenance fund, which is not adequate. This year, $8,400 should be appropriated to protect this investment. A certain portion of the revenue should be set aside to buy new devices when the present ones are worn out, for it might be readily assumed that two or three years from now the city may not have an opportunity to work out such a favorable financial arrangement with parking meter companies, whereby these companies receive their money out of curent revenues. The life expectancy of parking meters is about five years, so that in 1945 the city should replace the meters.

There are two primary reasons for the installation of parking meters. The first, which is the most important, is to allocate existing curb parking space for more convenient ingress and egress to a parking stall, to provide the greatest turn-over in parking, and to aid in the enforcement of parking legislation. The second reason is for revenue. In most cities in the United States where parking meters have been installed, the city officials have in some way, either by legislation or by an understanding, authorized the installation of parking meters only if moneys derived from them were earmarked for traffic improvements. Traffic officials believe that if a parking fee is to be extracted from the motorist, it should be given back to him in the form of traffic improvements.

Half of Traffic Signals More Than 16 Years Old

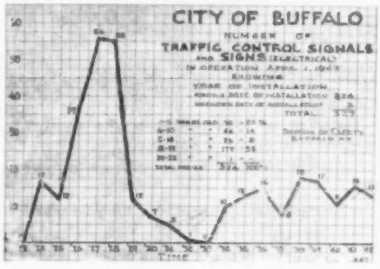
The traffic signal system in Buffalo is valued at $250,000. In 1942-43 only $3,350 was appropriated to maintain this system and $4,500 provided in the capital outlay fund for expansion or modernization.

It is recommended that the appropriations for upkeep be increased at least $2,500 to help in the maintenance of this one-quarter of a million dollar investment. Last year's appropriation for "upkeep of traffic signals" was $2,500. For many years $4,500 has been provided in the traffic-signal capital outlay fund. This is not enough for enlargement or modernization. It is recommended that at least $10,000 be put aside and marked in the budget so that the Police Department and the Board of Safety may have the minimum funds necessary to improve the traffic control system. The present system consists of 327 signals as follows

Fixed time, coordinated, etc.		262
Fixed time	165	
(41 to be co-ord)		
Coordinated	97	
Pedestrian		24
Traffic actuated		5
Flashing		15
Fire house		9
Railroad siding		2
Plant entrances (manual)		2
Bridge		2
Signs (elect.)		6
Total		327

Most of the mechanisms called the traffic signal controllers should be replaced by up-to-date devices, so that they can be coordinated with one another. The curve showing date of installation is the answer to why we are having difficulty at present in revamping the traffic-control system to wartime needs.

Modernization of traffic signals is one of the major projects for the post-war period. Traffic cannot be moved efficiently with equipment 16 to 20 years old. We must take advantage of traffic-control equipment on the market that will pattern its operation on the demands of traffic. It is recommended that the following projects have priority over all other projects in the im-



This chart shows the number of traffic signals and electrical signs installed each year from 1922 to April, 1943. Ages of Buffalo's signals are as follows:

Years	*Number*	*% of Total*
1- 5	75	23
6-10	46	14
11-14	25	8
15-19	177	55
20-22	1	—
1922-42	324	100

DON'T wait until this war is over to find out! Start *now* to plan for tomorrow . . . for that day when your boys come back to a home town that will offer advantages . . . *vital* advantages that will enable them to live and prosper in their own community.

Plan now to reduce postwar city taxes and lower kilowatt rates with a Fairbanks-Morse Diesel-operated municipal light and power plant. The savings you make will pay for many other essential home-town improvements.

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Diesels

provement of the street and highway system:

Traffic Actuation (Controllers) — At least 50 intersections should be equipped with traffic-actuated devices, so that vehicles and pedestrians can fit signal operations to their needs. In most cases, it would take a type of equipment called "Semi Traffic Actuated"; in others, "Full Traffic Actuated"; and in still others, either of the former in combination with the pedestrian control feature. The cost to modernize existing equipment for traffic-actuation operation would be approximately $500 per intersection.

Traffic Controllers—It is recommended that 100 modern traffic signal controllers—including features permitting coordinated operation, pedestrian actuation, flashing operation, or part time operation—be purchased for the present system. These controllers will cost approximately $160 each.

Coordination—It is necessary, because of numerous traffic signals on the primary and secondary streets, to interconnect them by either overhead cables or by cables installed in duct lines. Every traffic signal on primary and secondary streets should be interconnected and synchronized to move traffic in waves or platoons—a method which does not necessitate the stopping and starting of vehicles over a particular route if a certain speed is maintained by vehicles using that route. At present, some coordination is possible through the use of independent synchronizing devices, but they are very unsatisfactory for they need constant checking. Limited manpower is always a factor in city operations, in peacetime as well as in wartime. An initial installation of 10,000 feet of duct lines and interconnecting cable will alleviate the need for check ups, with less operating and maintenance cost and more satisfactory operation.

45,000 Traffic Signs

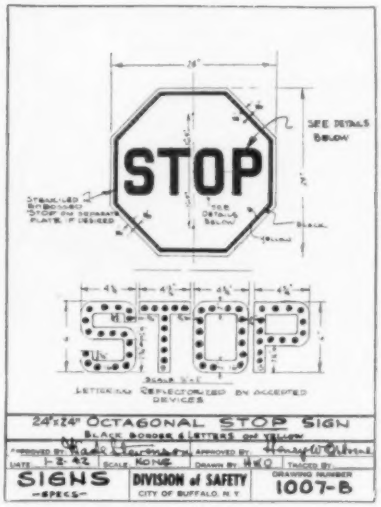
The 45,000 traffic-control signs on Buffalo's street and highway system are valued at $225,000. Of these, 4,000 are stop signs. The state law requires that such devices shall be visible both day and night; yet only 25 per cent of them are provided with reflecting buttons. To comply with the state law, 3,000 stop signs must be reflectorized at a cost of $7.50 per unit. This project would be one of the most valuable of all those proposed. It would not only provide night visibility, but would afford an excellent opportunity to relocate signs for better daytime visibility.

The type of stop sign we desire is illustrated in this article. Incidentally, in many cases the courts do not prosecute a violation of running past a non-reflectorized stop sign during dark hours.

City officials responsible for the design and fabrication of traffic signs other than stop signs, have conformed to the uniform standards as to size, color arrangement, and mounting height. At least 20,000 of the present signs should be rehabilitated at an average cost of $2. This work would include:

1. Uniformity of message
2. Glazing with reflecting beads the No Standing, One Way, and other informational signs
3. Removal of signs from utility poles to city-owned property
4. Utilization of a system to prefabricate standards and bases as one unit, using galvanized pipe and a concrete butt. This would reduce maintenance costs at least 60 per cent, for it would eliminate the need to paint standards, and it would facilitate the installation of traffic control sign standards

In 1942-1943, $3,850 was appropriated for the upkeep of this $225,000 investment. This is not enough to maintain so large a number of traffic signs. The appropriations should be increased at least $1,500.



Buffalo's octagonal stop signs are 24 x 24 inches, with reflectorized letters 6 inches high, black border and letters on yellow.

For some years, $5,500 has been appropriated in the capital outlays account for the enlargement and modernization of this system, which again is not adequate for 45,000 signs. It is recommended that an additional $10,000 be set aside for improvements. This would be only a small proportion of the annual parking-meter revenue.

Traffic volume, though reduced, is even deadlier at night. What to do then is told by Henry W. Osborne on page 103 of this issue.

Traffic Signals Out at 7½ Per Cent of Intersections

"PROBABLY in no field are the interests of ODT and the police departments closer than in street traffic control," said E. A. Roberts of ODT at the Detroit convention of the International Association of Chiefs of Police.

"We are still in the midst of this campaign, and it presents a wonderful opportunity for every police department to make a big contribution to our national campaign for saving rubber, gasoline, and all the other items that are wasted when trucks, buses, and private cars are compelled to make unnecessary stops.

"A partial survey of the results of this campaign to review traffic control practices, indicates that out of 20,000 signalized intersections which were reviewed, 1,500 signalized intersections were eliminated and 100 new ones were created. Nine hundred intersections were changed from stop-go to flashing lights; 1,700 were changed to a shorter cycle; and 1,800 are being operated for a lesser number of hours than formerly.

"Another important subject in which both the police and ODT are interested is the establishment of primary war transportation routes, and I have no doubt that such routes have been designated and are in use in most cities for the purpose of conserving the time of war workers and the mileage of vehicles carrying war materials and workers.

"The local enforcement of the 35-mile speed limit has not been as uniformly tight as could be desired. However, the development of synthetic rubber, while coming fully up to expectations, has not as yet justified the removal of this low speed limit. Until the Office of the Rubber Director can assure us that we are out of the woods as far as tires for civilian use are concerned, I can only repeat Mr. Eastman's plea calling upon you 'to lend your powerful and effective aid in the enforcement of this restriction.'

"Before concluding these remarks I must refer to the War Transportation Committees which are functioning on a voluntary basis in practically all our cities. The police department is often directly represented on them by a ranking officer. The most important function of these committees is to develop and install staggered hours programs, but they also have responsibility in their communities for handling numerous transportation matters of a purely local nature. Generally speaking, they are doing an excellent job, and I urge that you maintain close contact with them on matters pertaining to local passenger transportation."

Pomona Pumps Used for Navy's Greatest Salvage Job!

Probably never in the history of this nation has a more desperate battle against time been waged than in the operations shown here... the U. S. Navy's raising of sunken warships at Pearl Harbor. The size of the project and the speed and efficiency with which it was accomplished make it one of the great engineering feats of all time...

This official Navy photograph shows one phase of this grim race... the job of dewatering and raising the giant warships. Here was a pumping operation involving unusual difficulties... a problem of removing millions of gallons of sea water in great volume and without interruption of flow... *corrosive* water, mixed with oil scum from burst fuel tanks... water laden with harbor muck, gritty sands and rust ... *the toughest kind of a pumping job.* Added to this—working space was extremely limited, and time so precious that none could be wasted on equipment breakdowns!

High up on a column pipe in the photo above you can see the pump that the Navy used for this tough dewatering job—A POMONA PUMP!

What has this to do with YOUR pumping operations? Simply this... when the chips are down and there's a pumping job to do—*and do with maximum dependability, speed and efficiency*—Pomonas are the pumps to use. So why be satisfied with anything less than Pomona performance on ANY pumping operation? **Let your nearby Pomona distributor study YOUR pumping job and show the many savings Pomona Pumps can make!**

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Plants: 4301 So. Spring Ave., St. Louis 16, Mo.; 206 Commercial St., Pomona, Calif.

Close-up of the Pomona Pump at work on the U.S.S. California. Note below some of the features that make Pomona Pumps outstanding for ALL water-moving purposes...

CUT POWER COSTS

Pomona's semi-open impellers, easily adjustable at motor, vary the capacity of the pump according to requirement... and with proportionate savings in power. Eliminates wasteful throttling of flow!

SAVE SPACE

Pomona's modern vertical design puts the pump at water level where it needs no priming.. the motor at floor level where it occupies minimum space. Eliminates complicated piping and priming equipment!

TROUBLE-FREE OPERATION

Because all bearings below the motor head are fully lubricated by the fluid being pumped there is no risk of contaminating product or equipment with oil film. No oil tubes or grease chambers to maintain.

DELIVER MORE WATER

90%—*and higher*—pump efficiencies are not uncommon due to Pomona's Bulbous Vane End shape which smooths fluid flow—minimizes friction loss—increases pump efficiency!

POMONA
Water-Lubricated
PUMPS

20,000,000 Parking Meter Nickels Save 26 Lives

By Don R. Hammitt
Traffic Safety Commission
Portland, Oregon

The 2,060 parking meters of Portland have financed the city's outstanding traffic-safety program which already has saved 26 lives, employed 30 new policemen, and equipped the police department; and will finance post-war traffic improvements. Earnings were 32 cents per meter per day in 1940, and have been 34.7 cents in 1943.

WHEN the twenty-millionth nickel collected from the city of Portland's parking meters rolled off the coin-counting machine recently, City Treasurer Linwood B. Cornell called in Commissioner William A. Bowes of the Department of Public Works and presented him with the coin as a souvenir symbolic of the city's first $1,000,000 of parking meter revenue.

Upon presenting the nickel to Commissioner Bowes, which he purchased from the city fund with a nickel from his own pocket, Treasurer Cornell remarked that the nickels collected from parking meters by his office weighed a total of 104 tons. Stretched out in a continuous line, that many nickels would make a million dollar chain 262 miles long.

Parking meters have been in operation in Portland for five years. The city has a total of 2,060 meters in operation—slightly more than half of which are Duals and the remainder are Karparks.

In reviewing the benefits which the city has enjoyed as a result of the parking meter revenue, Commissioner Bowes pointed out that the traffic safety program, financed from the parking meter fund, has been effective. Statistics of traffic fatalities indicate that 26 lives have been saved here as a result of the safety program.

The flow of traffic on city streets has been expedited with the installation of signals and other traffic control devices, and many street improvements have been made possible by parking meter revenue. A portion of the fund is spent for the employment of 30 additional traffic police officers, and considerable police equipment has been purchased with the nickels of parkers.

Commissioner Bowes said that the parking meters were installed on downtown Portland streets with the stipulation that revenue from that source be spent for the improvement of traffic conditions.

Parking meters have greatly reduced the average time that cars are parked on downtown streets, so that it is now easier for motorists to find parking space. The meters have also greatly simplified the enforcement of the ordinances restricting parking.

Portland's parking meters have twice been contested in court, the city winning the decision in each case.

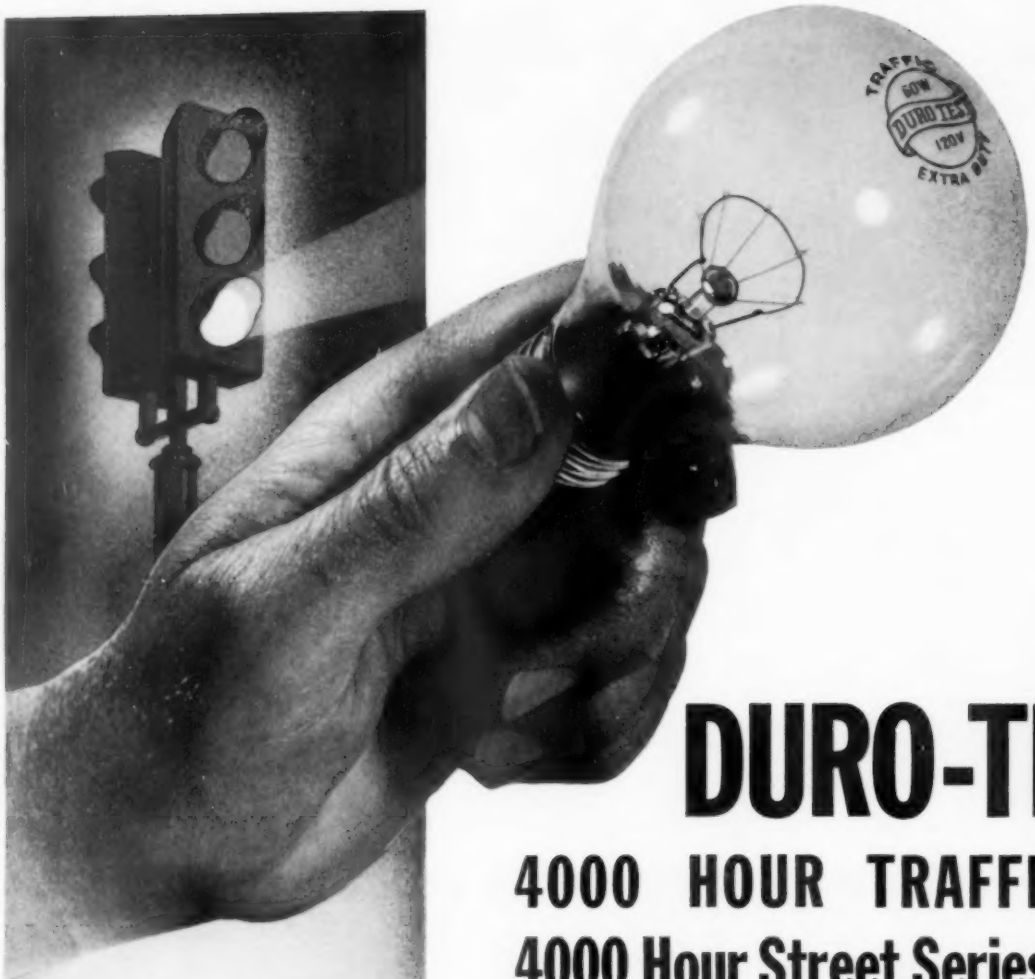
Although traffic counts taken by the bureau of traffic engineering, indicate an over-all 15 per cent decrease in traffic flow because of mileage rationing, there has been no reduction in parking meter revenue. In 1940 the average income per day per parking meter was 32 cents. So far during 1943 the average per day per meter has been 34.7 cents.

Commissioner Bowes said that a portion of the parking meter fund is being set aside for post-war traffic improvements in the city of Portland.

Detroit Pays Highest City Wages

Detroit has the highest paid municipal personnel in the country, according to a study by the Detroit Bureau of Governmental Research. Of the 13 largest municiplaities, Detroit is the only one whose non-labor groups work a 48-hour week and is one of five cities in which labor groups work 48 hours a week. The median salary for city employees in Detroit last May 15 was $3,319, and in the other twelve cities over 500,000, only $2,200. The median for garbage collectors in Detroit was $2,668 and in the other 12 cities, $1,680.

City Commissioner William A. Bowes (left) receives from Linwood B. Cornell, City Treasurer, the twenty millionth nickel collected from the Portland, Ore., parking meters. Commissioner Bowes is keeping the nickel as a souvenir of the city's first million dollars of parking-meter revenue. At right, collections are going on toward the twenty-first millionth nickel.



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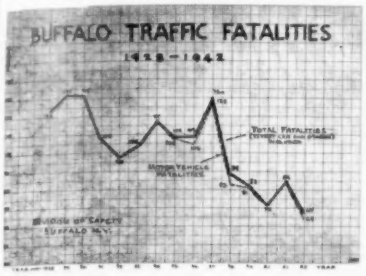
Outdoor Lighting

Streets—Highways—Floodlighting

"Street Lighting Is Answer"—

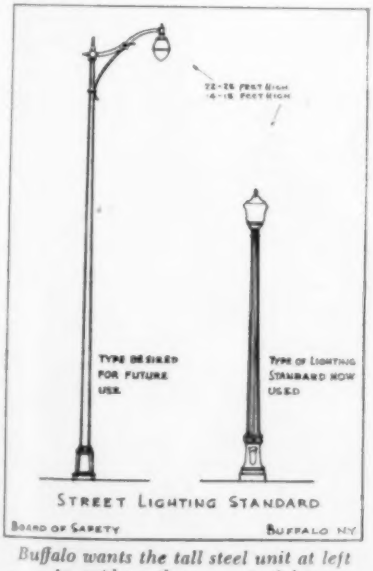
says Buffalo, N. Y.

THE trend in traffic fatalities in in Buffalo in the last five years is downward, as our 1928-42 curve shows.

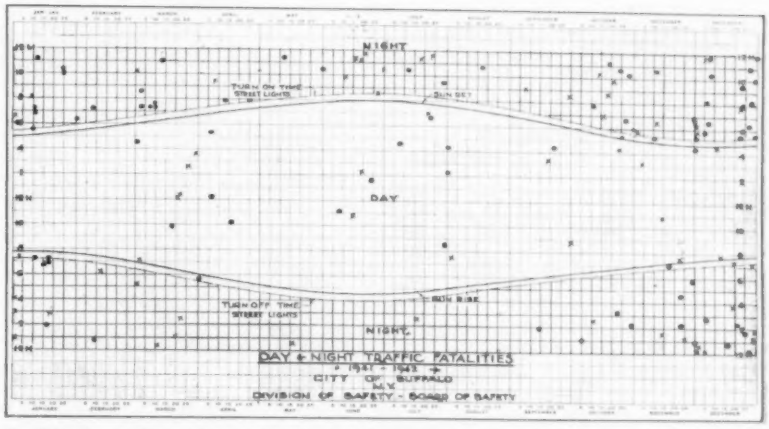


This trend could continue if improvements were made in the existing street-lighting system.

There must be a cessation of the existing practice of installing pedestal street lights of low mounting heights, and an extensive program begun to convert these to units of higher mounting height which will direct controlled lighting to the street and sidewalk where it is needed. *A very small percentage of the present light serves moving traffic. The existing fixtures waste light.* In residential areas, it does a *beautiful* job of lighting front lawns, porches and trees—which puts it in the classification of decorative lighting.



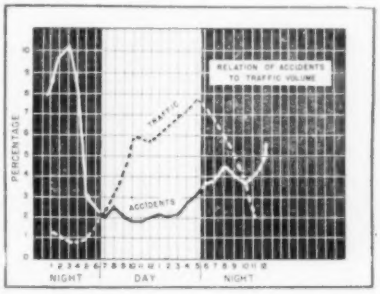
Buffalo wants the tall steel unit at left to replace the one at right.



In this chart, the middle strip of daylight hours is accurately charted by months. The two inner lines show when the sun sets, and the two outer lines show when the street lights are turned on. Every dot is a fatality and the majority of dots are seen to be in the night areas above and below the daylight strip.

The graph entitled, "Day and Night Traffic Fatalities for 1941-42," shows the time of day and night the 84 and 67 traffic fatalities, respectively, occurred in those years—70 per cent of them occurred during the hours of darkness. Location spot maps show that these fatalities are occurring on primary and secondary traffic routes, in important intersections where traffic volumes are heavy. These locations require more light of the proper type. In most instances there would be no increase in present operating costs—the new type of fixture and pole would give three to five times as much controlled light on the pavement and sidewalk for the same wattage input for which we are now paying. A program to improve the street-lighting system could be done over a period of five years. The first year it is recommended that improved lighting be installed as a part of the traffic improvement plan for intersection redesigns. New lighting should be installed on major streets where traffic-fatality frequency is the greatest. The records show these locations. Buffalo must do something to reduce traffic fatalities—street lighting is an answer.

HENRY W. OSBORNE,
Traffic Advisor.

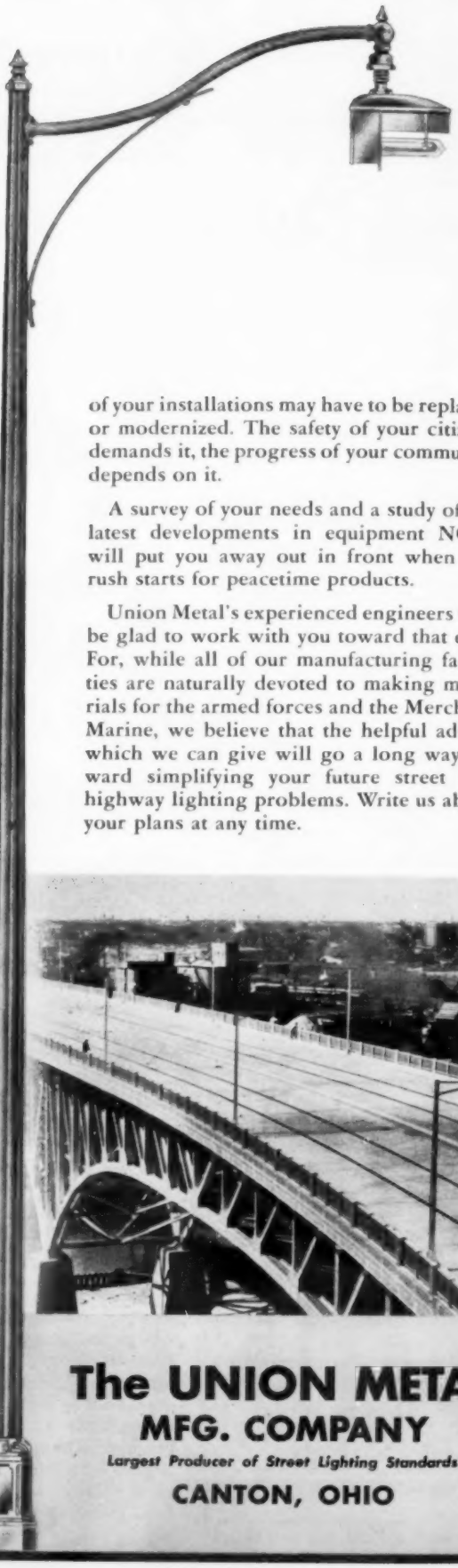


This charts shows the relation between traffic accidents and traffic volume during the 24 hours. The curve that rises by day is traffic volume. The curve that rises or is higher at night and is lowest by day, is traffic accidents.

Will Your City Be Better Lighted Too?

Because of the desire of people everywhere for the cheerfulness of good lighting, whether in the house or on the streets, progressive cities like Buffalo are planning their post-war street lighting now. The reasons and methods of such planning were presented in the May, June, and July issue of THE AMERICAN CITY this year. Write this magazine if you want reprints.

Let's Make a POSITIVE Start on Postwar Projects!



THINKING about tomorrow is a fine idea! Most city officials have been doing a lot of it lately. But one of these days, not so very far away, the war is going to be over and just *thinking* won't suffice. For, ready or not, the public expects a lot of immediate improvements when peace comes—and better living conditions is one of them.

So let's do something *positive* today to prepare ourselves for peacetime.

A good place to get started is with your street and highway lighting systems. In most towns and cities these systems will have to be vastly improved to cope with tomorrow's traffic conditions. In areas where residential sections have expanded you will need extensions to your system, while in downtown business streets, many of your installations may have to be replaced or modernized. The safety of your citizens demands it, the progress of your community depends on it.

A survey of your needs and a study of the latest developments in equipment NOW will put you away out in front when the rush starts for peacetime products.

Union Metal's experienced engineers will be glad to work with you toward that end. For, while all of our manufacturing facilities are naturally devoted to making materials for the armed forces and the Merchant Marine, we believe that the helpful advice which we can give will go a long way toward simplifying your future street and highway lighting problems. Write us about your plans at any time.

The UNION METAL MFG. COMPANY

Largest Producer of Street Lighting Standards

CANTON, OHIO

Traffic Safety Lighting in Lorain, Ohio

Safety Council Reports on Night vs. Day Deaths

THE 1942 traffic fatality toll was: day accidents—11,250 killed; night accidents—16,950 killed—according to the 1943 edition of the National Safety Council's "Accident Facts."

Day accidents dropped off 34 per cent in 1942, but night accident fatalities were only 26 per cent below 1941. Unfortunately no data are available to measure relative day-night trends in motor-vehicle travel. Curtailment of pleasure travel must have cut into night car usage, but on the other hand, around-the-clock shifts in war plants produced additional night travel.

Rates

The travel death rate at night is three times the day rate. Special studies have shown that accident mileage rates for every hour from 6 at night to 6 in the morning are above the daily average rate. In cities there are over ten times as many fatal accidents per mile of travel between 3 and 4 o'clock in the morning as there are between 9 and 10 A.M.—the safest hour. In rural areas, the accident rate for 1 to 2 A.M. is six times the rate for 8 to 9 A.M.

Cities planning their post-war street lighting are interested in the mounting height permitted by tall metal standards.

Other Characteristics

Other outstanding facts about night accidents are:

1. Night accidents are twice as severe as day accidents. Only 1 in 300 daytime motor-vehicle accidents proved fatal, but at night 1 in 150 resulted in death.
2. 62 per cent of all pedestrian fatalities occurred in the 8 hours from 4 P.M. to midnight.
3. In New Jersey one-half of all motor-vehicle accidents occurred between 6 at night and 6 in the morning, but the same twelve hours accounted for three-quarters of both the drinking-driver and driver-asleep accidents.
4. National estimates indicate that one out of every three fatal night accidents involved a drinking driver or pedestrian.
5. 7 to 9 P.M. were the peak hours for fatal accidents, with 14 per cent of the day's total.
6. During the four winter months, November to February, when hours of darkness are in the majority, and blackout hours of peak-traffic volume, the fatal night accident toll is over two-thirds of the daily total.

85% of Walkers Hit at Night

POLICE officers are going to crack down on "jaywalky" pedestrians—the primary cause of 29 deaths and 1,058 injuries in traffic accidents during August, 1943, in Los Angeles City. Seventeen pedestrians were struck between 7 and 8 P.M., and 13 were injured from 6 to 7 A.M. *The danger of pedestrian accidents during these two periods is increased by darkness and aggravated by the restricted lighting.*

Arrests will be made for crossing streets against the "red light," violating the right-of-way of automobiles in midblock, and failure to use cross walks provided at all intersections.

The crack-down on pedestrian violations is the second step taken this year to curb a rising accident toll. On August 1, a reduced "25 by night and 30 by day" speed limit was adopted for Los Angeles County. The death toll for August, following the establishment of the reduced speeds, was slightly below the month of July experience when 32 persons were killed.

To date this year, 166 pedestrians have been killed in traffic accidents—an increase of 14.5 per cent over last year's toll. Injuries to pedestrians have risen 35.3 *per cent. According to traffic records, 85 per cent of pedestrian accidents occur at night.*

Why Mask Traffic Signals?

ILLUMINATING engineers throughout the country have given much time and thought to wartime illumination problems. The objective has been to develop as much artificial light as possible for civilian safety requirements without affecting adversely the protection required, and rightfully demanded, by the army in behalf of seagoing commerce.

Recently Kirk M. Reid, Illuminating Engineer, General Electric Company, Cleveland, Ohio, has said:

"In the daytime normal operation of traffic signals at full effectiveness is important to safeguard and expedite transportation. Where lighting restrictions are in effect during the night hours, the objective is to meet restrictions by some method which does not sacrifice normal signal effectiveness by day.

"Any form of mask lessens traffic signal effectiveness. Signals should, therefore, be operated without modification except during blackouts or during sea-masking dimouts.

"Even at night in dimouts it is not likely that traffic signals operated at full normal effectiveness contribute in any measurable degree to sky glow. A representative four-way signal, equipped with standard 60-watt traffic signal lamps and standard sun visors six inches long at their peaks, emits approximately 60 lumens above the horizontal. This is less than the total light emission of a six-watt lamp."

At the spring program of the Greater New York Safety Council held at the Hotel Pennsylvania, an official representative of the United States Army stated unequivocally that the army had never required that traffic signals be masked as a general proposition.

All of which justifies the observation that the Connecticut State Traffic Commission ruled wisely and logically months ago when it handed out the dictum to Connecticut communities that, except as special sea-masking requirements necessitated, traffic signal lights should not be masked.

—From "Danger in the Dimout," issued by the Connecticut Department of Motor Vehicles.

DIMOUTS PROVE IMPORTANCE OF *Traffic Safety Lighting*

This Clipping From NEW YORK, N.Y. HERALD TRIBUNE APR 6 - 1943
Woman Killed By Hit-and-Run Auto in Dimout
Alice Adams, 30, a Kin of Francis Scott Key, Struck in Rain on Second Ave.
This Clipping From NEW YORK, N.Y. POST MAR 12 1943
Dimout Made 'Safe' But Cars Kill 4 More
This Clipping From NEW YORK, N.Y. WORLD-TELEGRAM MAR 5 - 1943
Dimout Traps 2 In Times Square
AUTO HITS 4 BOYS IN DIM-LIT 2D AVE.
One Killed as They Attempt to Cross Thoroughfare, Interlocking Arms
HURLED IN ALL DIRECTIONS
Long Island City Youngsters on Way for a Swim at Kips Bay Club
This Clipping From NEW YORK, N.Y. MIRROR APR 5 - 1943
This Clipping From NEW YORK, N.Y. HERALD TRIBUNE MAR 6 - 1943
Man Killed, Another Hurt In Times Square Dimout
Motorcycle Cop Tells Court Driver Is Held
Hit-Runners Kill Two, Hurt 1 in Dim Streets
This Clipping From NEW YORK, N.Y. POST APR 1 3 1943
Cars Kill 3 in Murky Dimout
Woman Dragged a Block by Auto
This Clipping From NEW YORK, N. Y. TIMES MAR 1 8 1943
This Clipping From NEW YORK, N. Y. WORLD-TELEGRAM APR 20 1943
Traffic Accidents Cost Four Lives In Heaviest Rain
Six Others Injured As Autos Pile Up In Street Dimout
This Clipping From NEW YORK, N. Y. JOURNAL AMERICAN MAR 12 1943
Dimout Blamed In Boy's Death
This Clipping From NEW YORK, N. Y. NEWS
This Clipping From NEW YORK, N.Y. POST APR 5 - 1943
Deaths
Soldier, Civilian
This Clipping From WHITE PLAINS, N. Y.
This Clipping From NEW YORK, N.Y. TIMES

NIGHT ACCIDENTS ON THE INCREASE!

NEWSPAPER headlines reveal what happens in cities when street illumination is dimmed. In spite of *reduced* traffic volume and *decreased* daytime accidents, night accidents have *increased*. For example, traffic deaths in one western city for the first four months of this year rose almost 70 per cent above the 1942 figure. Of these deaths, 88 per cent occurred at night. Crime waves have sprung up where they seldom appeared before. "Muggings" have recently caused loss of life.

For the duration, the toll of night traffic deaths can be lessened only by strict observation of dimout safety regulations on the part of drivers and pedestrians alike. Peace will bring the obligation and the opportunity to reduce night accidents through a program of modern traffic safety lighting, whose beneficial effects were just beginning to be realized before "Pearl Harbor." The engineering services of the General Electric Illuminating Laboratory are available to assist you with your planning. *General Electric Co., Schenectady, New York.*

The best investment in the world is in this country's future — BUY WAR BONDS

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
ALBERT S. BARD
Counsel,
National Roadside Council

Conflict Between State and Municipal Enactment—Abolition of Non-Conforming Use

MICHIGAN.—*Richards* v. *City of Pontiac*, Supreme Court, June 7, 1943, reported in 9 N. W. (2d) 885.

This is an action by one Richards and another against the city of Pontiac to restrain the city from enforcing a clause of its zoning ordinance against them. The plaintiffs are the owners of a trailer camp in the city. By an amendment of the state housing law regulating trailer camps, license fees, payable partly to the school board, partly to the county, partly to the municipality in which a trailer is located, are fixed, and the trailer is allowed to remain in a given location for an indefinite time.

A tourist camp ordinance has also been enacted by the city, which is in conflict with the state law, in that it limits the use of the trailer in a given locality to a period not to exceed three months in any one year, and provides for an annual license fee payable to the city.

The court holds that the city ordinance is void. The state act was intended to take over the entire field of regulation of trailer camps in the state. In the absence of specific authority from the state, the city cannot pass enactments contrary to general laws of the state. The trailer camp, therefore, being located in compliance with state law, cannot be interfered with by reason of the city ordinance.

The trailer camp was established a year and a half before the passage of the city ordinance, and prior to its enactment the plaintiffs had spent the sum of $8,000 in the improvement of the park. The plaintiffs, therefore, have acquired a vested right in its continuance.

Philanthropic and Eleemosynary Institutions—Care of Animals

NEW YORK.—*Westchester County Society for the Prevention of Cruelty to Animals* v. *Mengel and Others, Constituting the Zoning Board of Appeals of the Town of Yorktown*, 266 App. Div., May 10, 1943.

The Society is seeking to construct and use a building for the harboring of stray, unwanted and homeless dogs and for their destruction and other disposition, in a zoning district restricted to one one-family dwellings on lots of 40,000 or more square feet. The zoning ordinance by exception allows in the district philanthropic or eleemosynary use or institution other than a camp, sanatorium, hospital, correctional institution, or institution for the insane.

The Society claims that it is a philanthopic or eleemosynary institution and may therefore maintain its building in this district for the use stated. In the Supreme Court the contention to this effect was sustained. The case at this stage in the proceedings was reported in these Notes for April 1943. On appeal this ruling was partially reversed. The upper court holds that the Society is a philanthropic or eleemosynary institution for the relief of suffering. It is a non-profit organization; its members pay dues and contribute to its support; the proceeds of the contracts which it has with various villages and towns for the disposal of their unwanted dogs are insufficient to meet its operating expenses, and the deficit is made up by dues, donations and bequests. The fact that it obtains some income from these contracts, therefore, does not make it a commercial enterprise. A voluntary hospital does not cease to be a charitable institution because it receives compensation by renting some of its rooms and administering to private patients.

But the institution is not, as decided below, a philanthropic and eleemosynary institution within the meaning of the zoning ordinance. The preamble of the ordinance describes the necessity for it "that all * * * uses destructive of the peace and security of dwelling districts or destructive of property values shall be isolated and segregated," and while the preamble is no part of an ordinance, it may, as in this case, contain recitals which illuminate its purpose and intent. A fair and reasonable interpretation of the ordinance as a whole shows that it relates solely to philanthropic and eleemosynary uses and institutions for human beings. It was not intended to permit in a highly restricted residential district the establishment of a kennel for a hundred homeless dogs.

The Comptroller of New York City on Certain Aspects of Replanning

IN an address at a dinner given in celebration of the 104th anniversary of the birth of Henry George, Joseph D. McGoldrick discussed certain aspects of land use, not as the author of "Progress and Poverty" has written about them but as he might well see them, if he were alive, in the light of present events; for this is no longer characteristically the age of the rapid developments of cities, but rather of the survival of obsolete developments, which are sadly in need of radical replanning. And, as Comptroller McGoldrick observes, "our instruments are inadequate to the task."

Dr. McGoldrick continues as follows:

"The biggest problem confronting our cities is the extensive areas of obsolete developments which need to be replanned and rebuilt. . . .

"What are our instruments of replanning?

"There is firstly zoning. Zoning is now almost thirty years old. It has been an effective stabilizer of urban land values and of the areas developed since zoning became effective. But it is a limited and circumscribed instrument. In the first place, it may not have retroactive effect. It is narrowly restricted in the emonomic objects it may seek to obtain and esthetics (or what the British call amenity) is beyond its scope. It is static in its conception and basically negative in its approach. . . .

"What I . . . wish to express this evening is the need for some very sober thought about land in national and city planning. I am using the term 'land' in the very broadest sense in which Henry George used it, to comprehend the whole of our physical resources. I am concerned also with its ownership, its taxation, and its use. . . .

"Probably the biggest field for private enterprise in this country in the post-war world could be the rebuilding of our cities, but there are obstacles in our path. We must find out what they are and remove them.

"The greatest obstacle is the scattered, splintered ownership of land and the difficulties of assembling adequate plottage. I think it is significant that the only major [private] developments in this city in the past fifteen years, namely Radio City and Parkchester, were made possible because in each instance a single institution owned the requisite plottage. . . .

"I have a few tentative suggestions to offer for your consideration. They are highly tentative.

"One thing that we ought to consider is a mechanism of private condemnation under suitable limitations. This could be done on application to the Planning Commission to establish and safeguard the public interest—with the courts, as at present, fixing the award.

"Or we might seek to work out a procedure under which a given percentage of the owners in an area were given authority to reorganize the property very much in the way a majority group of bondholders are given authority under the Chandler Act to coerce the minority into acceptance of a corporate reorganization.

"A somewhat more direct approach is

McWane

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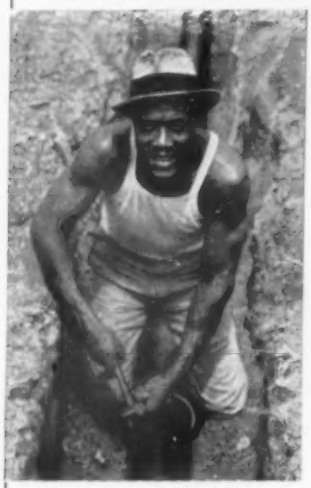

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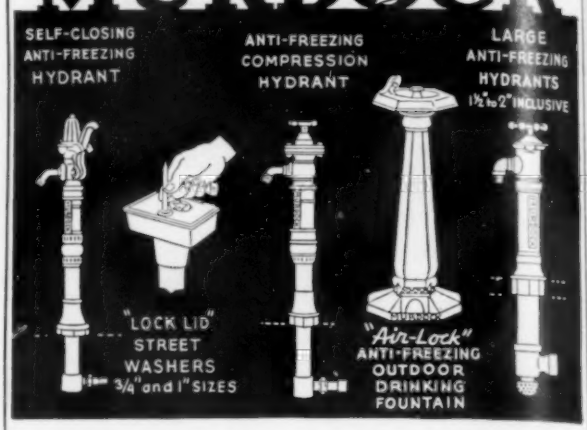
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that employed in New York State's Urban Redevelopment Act in which a corporation acquires property under a plan approved by the city, utilizing the city's power of condemnation. An alternative to this might be for the city to acquire a sizeable area which it would clear and replot and then lease at public sale with suitable covenants and reversion of the land and buildings to the city at the termination of the lease. . . .

Zoning for Stability in Real Estate Values

"In the field of zoning we might devise a mechanism for condemning the non-conforming use with the cost levied as an assessment upon the neighboring property. I would not claim too much for this as a means of improving our zoning. It would be useful in probably only a few types of cases. It would be much more important to extend the scope of zoning to include avowedly economic and esthetic objectives. I take it that the real purpose of zoning—certainly that which has won it acceptance—is the recognition of the need for stability in real estate values. Yet if A has a sound and prudent investment in, let us say, a small motion picture theatre, B is free to come along and destroy A's investment by erecting an unnecessary one. Has the community an interest in protecting A's prudent investment from B's folly?

"It is my belief that zoning must extend into quantity as well as type. I do not ignore the legal obstacles that confront such an exercise of the police power. What zoning has achieved as to economic stability it has had to sneak up on through the back door of health and sanitary objectives. Similarly as to esthetics, we cannot make a front attack on billboards as a blot upon the landscape. We must seek to exclude them from curves because they are a driving hazard or in cities because footpads may lurk in their shadows. Yet if we candidly recognize the reason that most people want zoning is to insure some degree of stability and amenity for their investments, then we might as well recognize that the quantity and quality of the buildings to be built in the zone have at least as great an influence as the uniformity of use, height and coverage. . . ."

In closing, Comptroller McGoldrick uses language that all disciples of Henry George—as are not we all to a greater or less extent?—will heartily approve:

"Let us not forget what Henry George taught us, that every aspect of a nation's activity is ultimately dependent upon land."

This department feels that Dr. McGoldricks suggestions are of great value, especially because they are tentative and may well provoke thoughts and arouse discussion. There is space for us to comment only on the zoning suggestions.

It cannot, in our opinion, be said that in theory zoning is necessarily static or basically negative. Recent decisions recognize zoning as a part of planning, and state that it may look to the future. All recent writers on zoning say that its object is to aid in the symmetrical development of the community as a whole, and the courts so recognize it. But practice in this respect is often sadly behind theory.

Nor is it true that the law forbids reasonable retroactive zoning. This the legal decisions prove. All that is necessary is that it shall be reasonable, as perhaps it would be if on a amortizable basis.

Would it be wise, therefore, to introduce condemnation, with compensation, into zoning? Would it not be better to let it remain in the field of the police power, and work for the expansion of that power? This has, on the whole, worked well in the realm of esthetics.

Municipal Christmas Card for Men in the Armed Services

PRIOR to Christmas of last year, the township of Teaneck, N. J., sent to all Teaneck citizens in the armed services a greeting card the wording of which is here reproduced. On the first page was an attractive sketch of the Teaneck Honor Roll which occupies, as the accompanying photograph shows, a prominent location near the Town Hall. The 4 pages, measuring about 4¼ x 6¼ inches each, are printed in black and red on white stock.

Township Manager Paul A. Volcker, commenting on the Shrine of Honor of Janesville, Wis., (descried on page 97 of the September issue of THE AMERICAN CITY), says:

"The people of Teaneck felt the same way as the Janesville people evidently did about the inadequacy of a signboard. Teaneck's Honor Roll, designed by one of our citizens now a Councilman, was dedicated last Armistice Day. It now contains about 2,500 names. These are printed on white cardboard and are renewed twice a year."

Season's Greetings
from all in
TEANECK

Reproduced on the front of this Greeting is the Roll of Honor, on which your name appears, erected by the Township of Teaneck, and bearing the inscription "TO HONOR TEANECK CITIZENS IN THE SERVICE OF THEIR COUNTRY."

The thoughts of all Teaneck citizens are with you this Christmastide, wherever you may be. May your patriotic service to our Country hasten the time when there again will be

Peace on earth, good will toward men.

TEANECK TOWNSHIP COUNCIL
1942

PLANNING FOR THE FUTURE?

Let's not forget the present—still let's plan for the future, too! Our vital transportation system calls for the construction of new Highways, Roads, Streets, and the repair of our present system, so be prepared —plan to purchase your Littleford Black Top Construction and Maintenance Equipment after Victory. Pave the Road to Victory first, pave the Roads later.

Upper Left—Road Broom.
Lower Left—"Tankar" Heater.
Bottom—"Spray Master" Pressure Distributor.
Right—Bituminous Supply Tank.

BLACK TOP ROAD MAINTENANCE EQUIPMENT
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Conventions—When and Where

Oct. 19-20—Milwaukee, Wis.
AMERICAN WATER WORKS ASSOCIATION—WISCONSIN SECTION.—Wartime Waterworks Conference. (Hotel Pfister.) Sec., Leon A. Smith, City Hall, Madison, Wis.

Oct. 19-21—Sacramento, Calif.
LEAGUE OF CALIFORNIA CITIES. Annual Conference. (Hotel Senator.) Sec.-Treas., Chas. Schwanenberg, City Manager, Oakland, Calif.

Oct. 20-21—Augusta, Maine
MAINE MUNICIPAL ASSOCIATION. Annual Convention. (Augusta City Hall.) Acting Sec., Ernest Johnson, 97 Water St., Hallowell, Maine.

Oct. 20-22—San Antonio, Texas
LEAGUE OF TEXAS MUNICIPALITIES Annual Convention. (Hotel Gunter.) Exec. Dir., E. E. McAdams, 2220 Guadalupe St., Austin, Texas.

Oct. 21—Springfield, Ill.
ILLINOIS ASSOCIATION OF PARK DISTRICTS. Sixteenth Annual Convention. (Hotel Leland.) Asst. Dir., Miss Majorie Dickinson, 537 South 4th St., Springfield, Ill.

Oct. 21-25—Chicago, Ill.
CENTRAL STATES SEWAGE WORKS ASSOCIATION. Joint Meeting with the Wartime Sanitation Conference of the Federation of Sewage Works Associations. (Hotel Sherman.) Sec.-Treas., J. C. Mackin, Route 4, Madison, Wis.

Oct. 21-25—Chicago, Ill.
FEDERATION OF SEWAGE WORKS ASSOCIATIONS. Wartime Sanitation Conference. (Hotel Sherman.) Sec., W. H. Wisely, Box 18, Urbana, Ill.

Oct. 24-27—Chicago, Ill.
AMERICAN PUBLIC WORKS ASSOCIATION. Public Works Congress. (Hotel Sherman.) Exec. Dir., Frederic Bass, 1313 E. 60th St., Chicago, Ill.

Oct. 24-27—Pittsburgh, Pa.
NATIONAL ASSOCIATION OF COMMERCIAL ORGANIZATION SECRETARIES. War Conference. (Hotel William Penn.) Exec. Sec.-Treas., Miss Elizabeth Glenn, 1615 H St., N. W., Washington, D. C.

Oct. 25-26—Jefferson City, Mo.
MISSOURI WATER AND SEWERAGE CONFERENCE. (Hotel Governor.) W. A. Kramer, Sec.-Treas., State Board of Health, Jefferson City, Mo.

Oct. 27-29—Chicago, Ill.
THE AMERICAN MUNICIPAL ASSOCIATION. Annual Conference. (Hotel Blackstone.) Exec. Dir., Earl D. Mallery, 1313 E. 60th St., Chicago, Ill.

Oct. 27-29—Los Angeles, Calif.
AMERICAN WATER WORKS ASSOCIATION—CALIFORNIA SECTION. Wartime Conference. (Hotel Biltmore.) Sec., H. Arthur Price, Box 3669, Terminal Annex, Los Angeles, Calif.

Oct. 28-29—Niagara Falls, Ont., Canada
THE CANADIAN INSTITUTE ON SEWAGE AND SANITATION. Annual Convention. (Hotel General Brock.) Sec.-Treas., Dr. A. E. Berry, Dept. of Health, Parliament Bldg., Toronto, Ont., Canada.

Nov. 1-2—Pittsburgh, Pa.
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Annual Water Conference. (Hotel William Penn.) General Chairman, H. M. Olson, Hotel William Penn, Pittsburgh, Pa.

***Nov. 1-3—Winston-Salem, N. C.**
AMERICAN WATER WORKS ASSOCIATION—NORTH CAROLINA SECTION. Annual Conference. (Hotel Robert E. Lee.) Sec.-Treas., R. S. Phillips, Chief Chemist, Water Dept., 206 Decian Ave., Durham, N. C.

***Nov. 1-3—Winston-Salem, N. C.**
NORTH CAROLINA SEWAGE WORKS ASSOCIATION. Annual Conference. (Hotel Robert E. Lee.) Sec.-Treas., R. S. Phillips, c/o Water Dept., 206 Decian Ave., Durham, N. C.

Nov. 1-3—Clarksburg, W. Va.
AMERICAN WATER WORKS ASSOCIATION—WEST VIRGINIA SECTION. Joint Meeting, West Virginia Section and Eighteenth Conference on Water Purification. (Hotel Stonewall Jackson.) Sec., John B. Harrington, c/o State Dept. of Health, Charleston, W. Va.

***Nov. 4-6—Atlantic City, N. J.**
AMERICAN WATER WORKS ASSOCIATION—NEW JERSEY SECTION. Fall Meeting. (Hotel Madison.) Sec., C. B. Tygert, P. O. Box 178, Newark, N. J.

***Nov. 10—Atlanta, Ga.**
GEORGIA MUNICIPAL ASSOCIATION. Annual Meeting. (Hotel Ansley.) Sec., Zach Arnold, Hotel Ansley, Atlanta, Ga.

Nov. 16-17—Little Rock, Ark.
ARKANSAS MUNICIPAL LEAGUE. Annual Convention. (Robinson Memorial Auditorium.) Acting Exec. Dir., Glenn G. Zimmerman, City Bank Bldg., North Little Rock, Ark.

***Nov. 17-19—Birmingham, Ala.**
ALABAMA LEAGUE OF MUNICIPALITIES. (Hotel Tutwiler.) Exec. Sec., E. E. Reid, Exchange Hotel, Montgomery, Ala.

Nov. 18-19—New York, N. Y.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Conference. (Hotel New Yorker.) Exec. Sec., James J. Smith, 808 Trenton Trust Bldg., Trenton, N. J.

***Nov. 18-20—Fort Lauderdale, Fla.**
AMERICAN WATER WORKS ASSOCIATION—FLORIDA SECTION. Annual Convention (Governor's Club Hotel.) Sec., A. P. Black, University of Florida, Gainesville, Fla.

Nov. 20-22—Chicago, Ill.
NATIONAL TAX ASSOCIATION. (Palmer House.) Sec., Raymond E. Manning, Library of Congress, Washington, D. C.

Nov. 22-25—Roanoke, Va.
AMERICAN WATER WORKS ASSOCIATION—VIRGINIA SECTION. Fall Conference. (Hotel Roanoke.) Sec., F. H. Miller, Asst. Engineer, Bureau of Sanitary Engineering, State Dept. of Health, Richmond, Va.

Nov. 29-30—Chicago, Ill.
HIGHWAY RESEARCH BOARD OF THE NATIONAL RESEARCH COUNCIL. Annual Meeting. (Hotel Edgewater Beach.) Dir., Roy W. Crum, 2101 Constitution Ave., Washington, D. C.

* First appearance of notice on this page.

Business and Government Unite for Post-War Jobs and Profits

TWO handbooks from the Department of Commerce Building in Washington last month point toward effective cooperation of business and government in planning for post-war productive employment.

"Community Action for Post-War Jobs and Profits" is the title of Industrial Series No. 6 of the U. S. Department of Commerce. This handbook is planned as an action guide for the use of alert local leaders in studying community assets, needs, and potentialities and aggressively putting them into effect.

Civic planning is given three pages in this Chamber of Commerce publication. Pointing out the significance to business of community improvement problems, the handbook says:

"Business should make a careful inventory of sound civic improvements to be inaugurated after the war. Have your own shelf of public works so that when federal, state, or city funds are available for this work there will be no misguided projects in your area—just solid, substantial, needed work. Don't blame civic leaders if they spend money on ill-advised projects in your area for lack of better ideas. Instead, be prepared with a sound program for community projects which can be recommended."

From the Committee for Economic Development, a businessmen's organization with headquarters in the Department of Commerce Building, comes a handbook entitled "Plan Post-War Jobs—Now." While acknowledging the fact that "government, civic as well as federal and state, contributes to private employment indirectly through the purchasing power of those on government payrolls, and directly through purchase of supplies and public works," the Committee for Economic Development concerns itself primarily with the part that business can play in providing maximum employment and production.

Municipal Bond Market

Some sales of new issues as reported in recent issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$120,000	Allentown, Pa., Sewer	1.0	2-9 Ser.	0.581
277,000	Boston, Mass., Registered	3.5	1.85	0.74
143,408	Wichita, Kans., Paving and Sewer	1.25	5-33 Avg.	0.952
300,000	Fargo, N. D., Airport	1.0	6 Avg.	0.979
175,000	Mariemont, Ohio, School: Refunding	1.25	9.66 Avg.	1.218
160,000	Palo Alto, Calif., Hospital	3.0	8.5 Avg.	1.127
100,000	Gary, Ind., School City, Refunding	1.5	15	1.455
270,000	Grand Rapids, Mich., Water Revenue	2.75	18-20 Ser.	1.736
3,510,000	Imperial Irrigation Dist., Calif., Electric Revenue, Eighth Issue	3.25	10-25-19.5/O.-A.	3.20
1,817,000	Gloucester City, N. J., Refunding	3.5	12.5 Avg.	3.5

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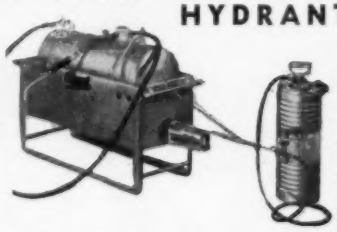

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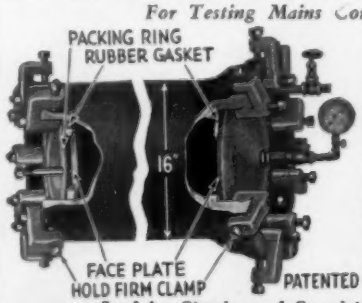

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Municipal and Civic Publications

Community Planning Guide

Action for Cities, A Guide for Community Planning—Published under the sponsorship of American Municipal Association, American Society of Planning Officials, and International City Managers' Association, by the Public Administration Service, Chicago, 1943. VI + 77 pp. $1.00.

A guide to community planning which will help interested and intelligent citizens and officials to develop a planned program for their community. Presents techniques for preparing plans by progressive stages, as developed by the National Resources Planning Board, through its Urban Section, in Corpus Christi, Texas, Salt Lake City, Utah, and Tacoma, Washington —in each case of which local government was responsible for direction of the program. Expertly segmented for easy reference. Replete with bibliography.

Air Transport

The Outlook for Domestic Air Transport.—By Ernest W. Williams, Jr., National Planning Association, 800 21st Street, N.W., Washington 6, D. C. No. 21. September, 1943. 30 pp. 25c.

Adapted from a study made for the NRPB, the author keeps his feet on the ground, even though discussing a subject that is primarily above ground. Air transport, it is believed, while supplementing ground transport, is unlikely to replace any type of vehicle now used. First-class mail and passenger traffic, it is believed, will constitute most of the airplane's early post-war use. Lines for international traffic can be a means of cementing good fellowship between nations, although much governmental diplomacy will be necessary to equably balance franchise rights.

Municipal Employees' Manual

Better Public Service—Compiled by employees of the City of Kalamazoo, Mich. Edited by Bureau of Municipal Research, under the direction of Dr. R. F. Cornell. 48 pp., mimeo.

A sturdily bound pamphlet detailing to its public servants, the various public services of a community, in order that Kalamazoo's employees may see the city's services as a coordinated entity. The Open Letter to Employees by the City Manager presents a thesis for efficiency that can be compared favorably with any private business. Useful for students of public administration. Indexed.

Conference Proceedings

Municipal Problems.—Proceedings of the thirty-fourth annual meeting of the Conference of Mayors and Other Municipal Officials of the State of New York, Albany, N. Y. June 9-11, 1943. 122 pp. $1.25.

Despite the unexampled stress laid upon municipalities by war emergencies, officials of the cities and villages have cooperated favorably with state and federal war agencies. Civilian protection, shortages in personnel, rising wage requirements, variables in municipal revenues in relation to increasing federal taxes, allocation of revenues from the sale of scrap, compensation of defense workers, expenses of rationing boards, air raid warning signals, wage and labor stabilization regulations, post-war planning, special funded debt problems—all these matters, some regular problems, most of them created by the emergency, were discussed at this conference. Arthur Collins, Advisor to Local Authorities, London, presented a paper on British cities at war.

Asphalt Paving Specifications

Construction Specifications of The Asphalt Institute.—Published by the Asphalt Institute, 801 Second Ave., New York 17, New York. 1943. 263 pp.

Bound into a small, workmanlike handbook is the complete set of specifications covering the use of asphalt for road and street maintenance and construction, in accordance with their 1942 revisions. While not introducing any new specifications, its present handy form will be welcomed by engineers and officials responsible for this type of work.

Measuring Fire Loss

Fire Losses and Fire Risks.—By Herbert A. Simon, Ronald W. Shephard, and Frederick W. Sharp. Bureau of Public Administration, University of California, Berkeley, Calif. 1943. x + 65 pp.

This study shows how fire loss ratios can be appraised with due allowance for the magnitude of the fire risks involved. Applies the method to fire losses in Oakland and Berkeley and to residential fires in Oakland.

School Expenditures

Expenditures per Pupil in City Schools, 1940-41.—By Mary Ella W. Banfield, Senior Statistical Clerk, U. S. Office of Education, Washington, D. C. 33 pp., mimeo.

A statistical survey of the 1940-41 expenditues per pupil for full-time city day schools, showing amounts spent for administration, instruction, operation and maintenance of physical plant, auxiliary school services, and fixed charges. Includes a feature not contained in previous studies, the amounts expended for the items making up each of these accounts.

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Sanitation

Municipal and Rural Sanitation.—By Victor M. Ehlers, Chief Sanitary Engineer, State Health Department of Texas; and Ernest W. Steel, Professor of Municipal and Sanitary Engineering, Agricultural and Mechanical College of Texas. Third Edition, 1943. xii + 448 pp. $4.00.

A presentation of aspects of sanitary engineering that generally are underemphasized in the conventional discussions. Milk sanitation, mosquito control, refuse disposal, ventilation and air conditioning, industrial hygiene, and housing all receive careful attention. Interesting also is the chapter on light and its relation to health.

Plant Location

Industrial Location and National Resources. —National Resources Planning Board, Washington, D. C. 1942. iv + 360 pp. $1.50.

A review of the various factors which influence plant location decisions and which therefore are shaping the geographic pattern of American industry. Part One deals with the relation between the distribution of the basic resources of the nation and the locational patterns of industry. The Second Part considers the growth of our manufacturing industries and recent shifts in their geographic distribution. Part Three analyzes the chief production and distribution factors which have a bearing on locational decisions. The Fourth Part analyzes organizational factors which influence the locations of particular industries, and the final section gives an over-all review of principles and methods of selection of plant locations.

Downtown Development

Downtown Saint Paul, A Plan for its Development.—Organizing Committee of the City of Saint Paul Central Business District Authority, Harry G. Clemens, Secretary, First National Bank Building, Saint Paul, Minn. August, 1943. 43 pp. Offset.

Objective: To show how cooperation between owners of downtown commercial property can reverse the trend of ruinous decentralization, of which $27,000,000 in property values has been lost in the 1930-1940 decade. Two primary developments are called for: increased ease of access and more parking facilities. Tax-forfeited lands are expected to yield both income and space to cope with the problem. The Committee is composed of municipal officials, affected property owners, realtors, labor leaders, etc.

Planning Legislation of States

Planning Legislation—1943.—American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill. 1943. 22 pp., mimeo. 50c.

A summary of planning legislation adopted by state legislatures during their 1943 sessions —covering: state planning and post-war planning, city planning, county planning, public works reserves, aviation and airports, urban redevelopment, zoning, administrative expenses, highways, subdivisions, and housing.

Planners' Education

The Education of Planners.—By Prof. John M. Gaus, Professor of Regional Planning, Harvard University. The Graduate School of Design, Harvard University, Cambridge, Mass. 1943. 50 pp.

A plan for the development of instruction in regional planning at Harvard University, including a study of the entire field of planning, and definite recommendations in respect to the work of the Graduate School of Design.

Business and Post-War World

Business, Free Enterprise and the Organization of Peace.—By Walter D. Head. Commission to Study the Organization of Peace, 8 W. 40th St., New York 18, N. Y.

A discussion of the important stake which American business and the system of free enterprise have in the organization of a peaceful world order among nations and opportunity among men.

Neighborhood Rehabilitation

Why City Planning Is Your Responsibility. How to Rehabilitate Your Neighborhood.—Oscar Stonorov and Louis Kahn for Revere Copper and Brass Incorporated, 230 Park Avenue. 14 pp.

One of the series of stimulating pamphlets isued by the Revere Company on post-war rebuilding. In contrast to most of this series' past publications (devoted to architectural, family-unit dreams), this pamphlet stresses the importance of the public working together with the city planner—in fact, counselling the planner on its localized desires and needs, so that the latter technician will not treat the plan as being more important than the people. Practical approach, and perhaps an opening wedge for follow-up articles of the same order.

Wartime Recreation

Two publications of the Division of Recreation, Office of Community War Services, Federal Security Agency, Washington, D. C.

Spare Time—A War Asset for War Workers. —1943. iv + 60 pp.

A handbook which is a collection of recreation experiences in industrial war communities, gathered by field representatives of the Division of Recreation in a period of more than two years. It offers suggestions which may be helpful to towns, cities, and groups facing similar problems.

Recreation a Resource of War.—1943. 8 pp.

A leaflet, prepared from the above full report, which gives a checklist of recreation programs, and outlines what various groups in the community can do toward providing wartime recreation.

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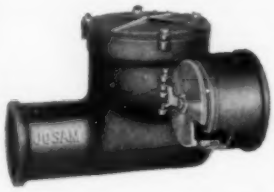

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Local Tax Problems

Local Tax Reform.—"Tomorrow's Town," September 1943. National Committee on the Housing Emergency, Inc., 512 Fifth Ave., New York 18, N. Y. 1943. 4 pp.

Some of the questions raised by recommendations of the United State's Treasury's Committee on Intergovernmental Fiscal Relations relative to real estate taxation form the basis for an informative discussion of local tax problems by various authorities in the September issue of "Tomorrow's Town." Among questions which the publication states should be examined are: Will an occupancy tax ease the general tax load? Will it provide, without too much strain on any one group, the money for necessary municipal services? In addition, this issue contains a summary of current tax facts and trends which should be of interest as a reflection of how various communities are reacting to current local tax problems.

Employment and Population Statistics

Two publications from U. S. Department of Commerce, Bureau of the Census, Washington, D. C.

State and Local Government Quarterly Employment Survey.—1943. 24 pp., offset.

Tabulations of non-school municipal employment in April 1943 in cities having 25,000 or more inhabitants (data for persons on work relief and employees of contractors are excluded). Gives the number of employees for the various governmental functions, and the amount of the payrolls, for each city.

Preliminary Estimates of the Civilian Population of Metropolitan Counties: March 1, 1943.—1943. 6 pp., offset.

Tabulation of the estimated civilian population of metropolitan counties and groups of counties, for March 1, 1943, April 1, 1940, estimated change between April 1, 1940, and March 1, 1943, and total population, April 1, 1940.

Government Employees

Supervision of Governmental Employees.—By Alfred M. Cooper. McGraw-Hill Book Co., Inc., 330 W. 42d St., New York City. 1943. viii + 208 pp. $1.75.

This book epitomizes ideas developed by experienced governmental supervisors in their discussions in conference, and not only emphasizes those instances in which normal supervisory practice is permissible, but also develops those other cases in which special methods of supervision become necessary when the subordinates are employed under civil service.

This volume is intended to be used as a reference book by experienced governmental supervisors, as a textbook for beginners in governmental supervision, and, with the aid of the discussion questions listed as an appendix to the subject matter, as a supplementary text for conference courses in supervision and executive training for governmental supervisors.

Planning Meeting

Planning—1943.—American Society Planning Officials, 1313 E. 60th St., Chicago, Ill. 1943. viii + 175 pp.

A compilation of the speeches and discussion at the annual meeting of the American Society of Planning Officials held in New York City, May 17-19, 1943. The addresses, delivered by a group of distinguished planners, deal with the various aspects of war and post-war planning problems, and include discussions pertaining to urban redevelopment, post-war planning by business, and park and recreation standards. Also includes the prize-winning essays in the contest for proposals for regional councils in metropolitan areas.

Training for Civilian Defense

Using Models as Training Aids.—Training Section, U. S. Office of Civilian Defense, Washington 25, D. C. 1943. 15 pp.

Booklet which describes, with the aid of photographs, an applicatory method which has been found effective by a number of local communities—of the use of models, or miniatures, as aids in training members of the Citizens Defense Corps.

Fire Prevention Bibliography

Books on Fire Prevention and Extinction.—Boston, Public Library, Boston, Mass. 1943. 5 pp., mimeo.

List of book references to be found in the Boston Public Library, on the history of fire-fighting and prevention, as well as general books on the subject, fire department hydraulics, fire fighting apparatus, firemen's examinations, and manuals for auxiliary firemen.

Municipal Accounting

Standard Practice in Municipal Accounting and Financial Procedure.—Municipal Finance Officers Association, 1313 E. 60th St., Chicago, Ill. 1943. 26 pp. 50c.

Pamphlet enumerating those principles of sound accounting procedure and of financial administration essential to effective financial management of a municipality. It is applicable to city, county, town, township, village, and other local government units. In addition to immediate administrative use to local officials, the pamphlet should be of value to accounting consultants, research bureaus, civic agencies, universities, and laymen interested in government.

Federally Owned Real Estate

Report on Federal Contributions to States and Local Government Units with Respect to Federally Owned Real Estate.—Transmitted by the Federal Real Estate Board (Executive Order No. 8034) and the President to Congress, May 26, 1943. United States Government Printing Office, Washington, D. C. v + 50 pp.

An evaluation of the situation in different communities adversely affected by the loss of tax revenue on land purchased or acquired by the federal government. Summarized recommendation: That the federal government should retain its long-established legal exemption from the jurisdiction of state and local tax authorities; that the federal government also continue to make contributions to state and local governments based on ownership of certain classes of property. Observation: Average annual federal aid to states, local governments and territories totaled approximately $858,000,000. If federal real estate were taxed at prevailing assessments, the income to such communities would have approximated only $91,000,000 annually.

The Report emphasizes that varied procedures are used for different types of real estate. For example, lands and buildings used for permanent administrative offices come under a different ruling than do such lands for conservation, aid to indigents, public housing, national defense, etc.

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Post-War Traffic Problems

Anticipating Problems of Post-War Traffic.—Regional Plan Association, Inc., 400 Madison Ave., New York City. 1943. 8 *pp.*

Bulletin setting forth the post-war traffic problems which may be expected, presenting solutions through facilitating vehicular movement and provision of terminal facilities, and outlining a comprehensive program for action now.

Importance of Planning

Planning with You.—By the Editors of Architectural Forum, 19 West 44th St., New York 18, N. Y. 1943. 18 *pp.*

Popular, practical pamphlet explaining why town planning is necessary, why it must be done now, what improvements it can make, how it is accomplished, and why responsible citizens must play an active part in it.

Chicago Plans Better Neighborhoods

Building New Neighborhoods.—The Chicago Plan Commission. 20 North Wacker Drive, Chicago, Ill. 1943. 44 *pp.*

Report presenting in detail reasons for the flight to the suburbs, the existing subdivision requirements, the proposed revisions to the code, illustrative cases using typical areas in Chicago, elements of design for better neighborhoods, and suggested local and state legislation proposed to achieve the broad objectives set forth in the book.

Post-War Bibliography

Economic Problems of the Post-War.—Chamber of Commerce of the United States, Washington, D. C. 1943. 22 *pp.*

Annotated bibliography of data and materials that are of interest for post-war readjustments, arranged under topic headings covering finance, labor, demobilization, public works, social security, problems of business and industry, and international affairs.

Housing and Planning

Housing and City Planning.—By Sydney Maslen. Reprint from the Social Work Year Book, Russell Sage Foundation, 130 East 22nd St., New York. 1943. 16 *pp.* 15c.

Summarizes data pertaining to housing conditions as shown by the 1940 U. S. Census, gives estimates of the housing shortage in the United States, and discusses the municipal and federal housing programs in operation throughout the country. Has sections on public regulation of dwellings, war housing, rent control, peacetime housing, slum clearance, semi-public housing, rural housing needs, and on city and regional planning. Short bibliography compiled.

A Plea for Planning

A Public Opinion for Planning.—By Talbot Hamlin, Librarian, Avery Library, Columbia University, Reprinted from the Summer 1943 *issue of* The Antioch Review, *Yellow Springs, Ohio.* 1943. 9 *pp.*

A strong plea for sound government planning directed toward improving the welfare of the country as a whole, as opposed to planning by private corporations and interest groups for private profit. Defends planning against such criticisms as that it is undemocratic and destructive of private initiative and emphasizes the need to build up a strong and articulate public opinion in favor of planning.

Planning Conference

Proceedings—Conference on Planinng Commission Objectives.—Prepared by The Institute of Local and State Government, 3437 Woodland Ave., Philadelphia, Pa. 1943. 16 *pp., mimeo.*

Report on the Conference on Planning Commission Objectives held in June 1943 by the Philadelphia Planning Commission and the Institute of Local and State Government, containing an interpretation of the discussion following each talk and of the dinner session, as well as an appendix made up of the outlines of the speakers' remarks.

Adequate Negro Housing

Both Sides of the Color Line.—By Elsie Smith Parker. Reprinted from the January and July 1943 *issues of the* Appraisal Journal, *published by the American Institute of Real Estate Appraisers, 22 West Monroe Street, Chicago, Ill.* 22 *pp.* 25c.

Two articles on the problem of Negro housing in which the author points out the evil conditions which exist, describes the steps which have been taken in New York City, Philadelphia, Detroit, Chicago, and Denver to ameliorate the problem and gives suggestions for achieving adequate Negro housing in the post-war period.

Planning Board Reports

Three publications from West Virginia State Planning Board, West Virginia University, Morgantown, W. Va.

Report of the Coordinating Committee in the Field of Public Health.—1943. *iv* + 31 *pp.*

Points out past, present, and proposed steps to improve public health and conditions in West Virginia. Background information is first presented as an aid to understanding and appreciating the problems and recommended remedial measures which follow.

Second Annual Progress Report of the West Virginia State Planning Board to the Governor and Legislature.—1943. *v* + 10 *pp.*

This report of the West Virginia State Planning Board, covering the period January 1, 1942, to December 31, 1942, outlines the structure of the Board, summarizes the important aspects of its present and future work, tells its needs, and presents a financial statement.

Report of the Coordinating Committee in the Field of Land Classification and Use.—1943. *ii* + 9 *pp.*

Résumé of reports of committees on zoning, soil classification, soil conservation, land use, and public and private ownership. Emphasis placed upon problem statements, and upon recommendations for education, demonstration, research, promotion, and legislation deemed most important to improved land use.

Other Reports Received

On the Social Management of an American Housing Program.—By Dr. Raphael Gold. Housing Authority, Dallas, Texas. 1943. 15 *pp.*

The Position and Influence of Northern Africa in the World Today—An address by Dr. John S. Badeau. Annual Report, Fairmount Park Art Association, 1421 Chestnut St., Philadelphia, Pa. 1943. 50 *pp.*

A History of Community Interest in a Juvenile Court.—Report of a study of Allan East, Oregon Probation Association, Portland, Ore. Shadows Press, Salem, Ore. 1943. 30 *pp.* 50c

Pacific Northwest Development in Perspective.—Pacific Northwest Regional Planning Commission, National Resources Planning Board—Region 9, Portland, Ore. 1943. *Unpaged.*

Beverly Hills, Calif.—Annual Report, Fire Department, 1942. Unpaged, mimeo.

Bronxville, New York.—Annual Report for village year 1942-43. 31 pp.

Brookline, Mass.—Annual Report of the Town Officers and Town Records for year ending December 31, 1942. vii + 473 pp.

Dayton, Ohio.—Annual Report, 1942. 123 pp.

East Cleveland, Ohio.—Annual Report for 1941-42. Unpaged.

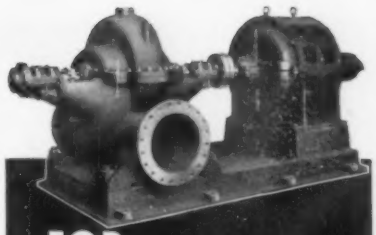
Lewiston, Idaho.—Annual Report, Engineering, Water and Street Departments, fiscal year ending June 30, 1943. 40 pp.

Montreal, Can.—Financial Statement and Assessments, 1942, the Montreal Metropolitan Commission. 53 pp.

Richmond, Va.—Manual, Board of Real Estate Assessors. 1943. 24 pp.

Rochester, N. Y.—"Your City Government." Annual Report for the year ending December 31, 1942. Unpaged.

Salem, Va.—Annual Report, year ending June 30, 1943. 40 pp.



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Morris Double-Suction Horizontally-Split Pumps are notable for their high efficiency and dependable, trouble-free operation. Water Department Superintendents of municipalities where these units are used report complete satisfaction with their service. Built in single and multiple stages for all capacities.

Bulletin on request

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Baldwinsville New York

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CENTRIFUGAL PUMPS
for municipal services

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PROTECT YOUR TANKS, CLARIFIERS, FILTERS, etc. WITH

The RUSTOP (Cathodic) System. Completely protects all types of submerged metals from corrosion.

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KEEPS NEW TANKS CLEAN

Greatly prolongs useful life of costly equipment. No service interruptions for installation. No scraping or painting.

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THE CATHODIC SYSTEM OF CORROSION PREVENTION

ELECTRO RUST-PROOFING CORP.
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INDIAN

Clear Water **FIRE PUMPS**

are the most economical fire fighting apparatus for the municipality since they use **only clear water** and tests show they will handle 70% of all calls without laying hose. No chemicals needed. Photo shows regular firemen instructing volunteers in use of **INDIAN FIRE PUMPS.**

INDIAN

Clear Water **FIRE PUMPS**

carry slung on the back thus enabling operator to move about quickly without having to drag a heavy extinguisher around. 5 gal. rust proof tank is fillable at ***any*** water supply. Easy pumping throws powerful 30 to 50 ft. pressure stream. Note how fireman has complete freedom of arms.

INDIAN

Clear Water **FIRE PUMPS**

are recommended by hundreds of fire chiefs who have written letters telling how valuable they are. They are the solution to the manpower shortage. Above picture shows the director of Cleveland Museum of Art trying on a pump. Note the many Indian Fire Pumps on floor ready for use.

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★ POLICE SIGNALING ★ INDUSTRIAL FIRE ALARM ★ FIRE AND WATCHMEN'S SUPERVISORY

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Two thousand municipalities, several thousand industrial plants and many of the largest institutions now use Gamewell Systems for the protection of life and property and to ensure the permanency of established business.

We freely cooperate in planning protective Signaling Systems.

THE GAMEWELL COMPANY

NEWTON UPPER FALLS MASSACHUSETTS

Boost the Value of Sewage Sludge

From a fertilizer standpoint all sewage sludge has an important percentage of nitrogen and smaller quantities of phosphoric acid, potash, and other plant foods. Typical analyses show contents of 2.0 to 2.5 per cent nitrogen, 1.0 to 1.5 per cent phosphoric acid, 0.5 to 1.0 per cent potash, and 40 to 50 per cent organic matter. This is about the equivalent and frequently surpasses the fertilizing qualities of animal manures.

As is well known to operators and engineers, the caked sewage sludge which comes from the drying beds or vacuum filters is not in condition for immediate use as a fertilizer. It must be broken down to proper size, aerated, and further dried, if the fertilizing values are to be realized. Growers today do not have the facilities nor the time to convert sludge cake into a useful fertilizer, although some sewage-disposal plants have been able to market sludge cake to a limited extent.

Since increased food production has become an important war factor, an increased number of sewage-treatment works are converting their sludge into a usable and marketable fertilizer with the Rover Sludge Disintegrator, made by the Rover Foundry & Machine Co., Kingston, Pa.

Sludge from the drying beds is shoveled into the hopper of the Rover and is picked up by a tough, endless belt, upon which is mounted rows of steel teeth or springs to thoroughly shred, mix, and aerate the sludge cake. This belt travels at an angle of 45°, and the teeth are so shaped and the rows so closely spaced that caked, lumpy sludge does not become impaled on the rapidly mixing teeth, but cascades on them, rolling over and over until it is broken down to pea size—small enough to drop between the teeth. Sticks, stones, and trash gravitate to the bottom of the belt, where they are held by a gate which is opened from time to time to remove the refuse.

The disintegrated sludge, which is further dried in the process, is carried up to the discharge opening and is ejected in such a manner that all particles are thrown clear of the machine. The arc of fall may be so regulated that the sludge can be loaded onto stock pile, truck, or wheelbarow. A sweep at the discharge opening prevents the passage of any materials which have not been reduced to the desired size. Sludge with a moisture content as high as 51 per cent can be readily disintegrated in this machine.

The Rover Sludge Disintegrator is manufactured in twelve stationary and portable models of varying capacity to meet the needs of all sewage-disposal plants. Electric motor, gasoline engine, and belt-to-tractor drives are available. All are of convenient shoveling height, with hopper designed so that one or more men can shovel into them. These machines contain few wearing parts and maintenance costs are low, only occasional lubrication being required.

The disintegrated sludge which comes from the Rover makes a valuable and marketable fertilizer, with or without the addition of chemicals.

A view of the Rover model NSC-2 sludge disintegrater.

Thousands of dollars worth of valuable equipment is damaged every year through the corrosive effects of sewage gas. Yet this costly corrosion can be prevented by proper purification methods.

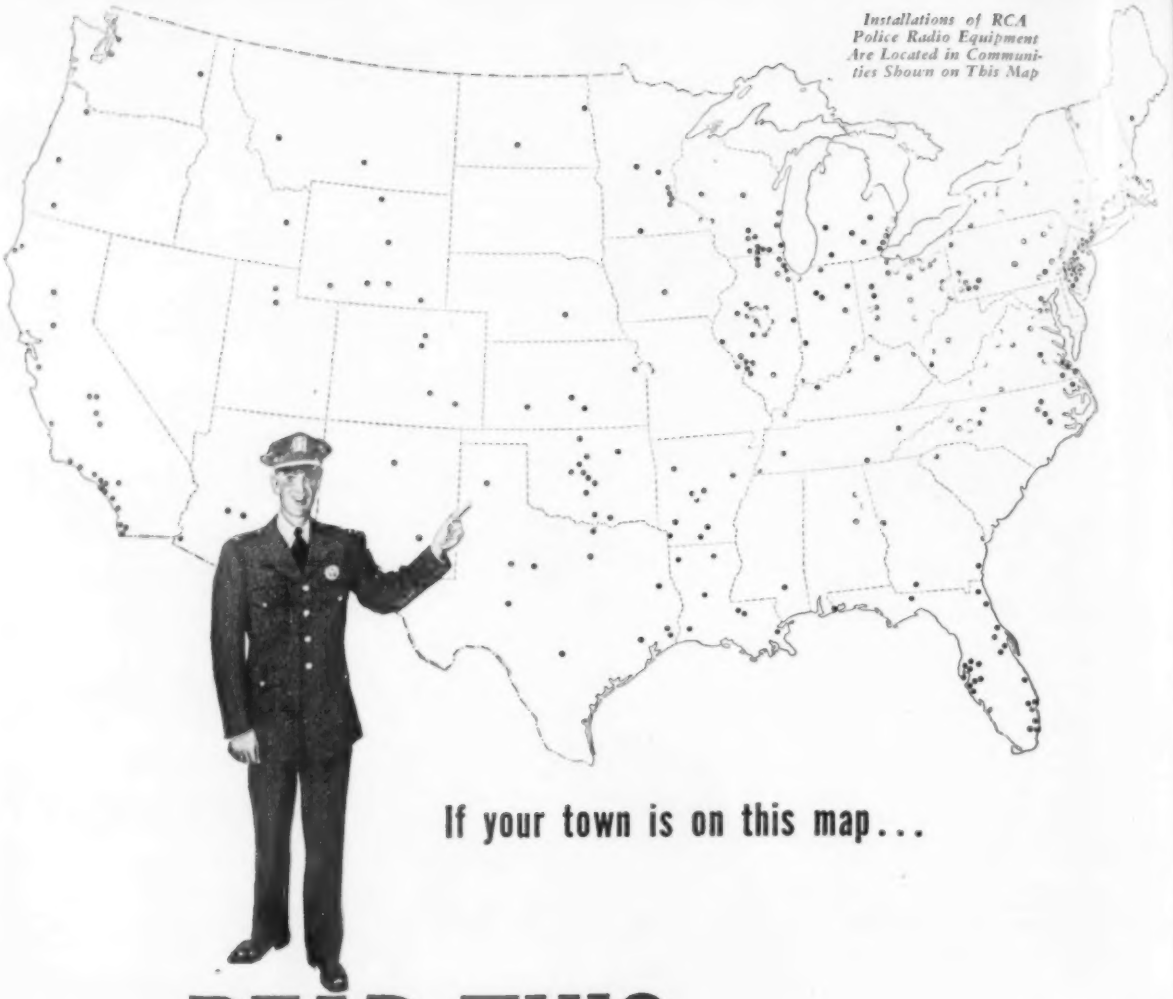
Let us make this FREE TEST for you

★

It's a simple matter to find out whether or not this corrosive action is going on in your own plant. In fact, we'll make the test for you. Write us today and we will send you instructions and a prepared test paper. All you need do is expose this paper to your sewage gas for a few moments, then mail it back to us. By a laboratory evaluation of this test paper we can tell whether or not your gas contains sufficient hydrogen sulphide to cause corrosion.

Make sure — today. Write for this testing material now. There is no charge for this service and you are under no obligation.

Connelly IRON SPONGE & GOVERNOR COMPANY
CHICAGO, ILL. • ELIZABETH, N. J.



If your town is on this map...

READ THIS

In every city and town on this map RCA Police Radio is helping to fight crime.

Today RCA factories are producing radio equipment to fight Germans and Japs on a bigger map—a world map.

This job requires an immense amount of the *best* equipment.

RCA was drafted to manufacture a huge portion of that equipment.

Men who are drafted for war can't stay on the home job.

Neither can manufacturers.

But don't think for one instant that RCA has forgotten its police customers.

RCA is going to supply you with better equipment and better service than ever before—just as soon as war conditions permit.

RCA

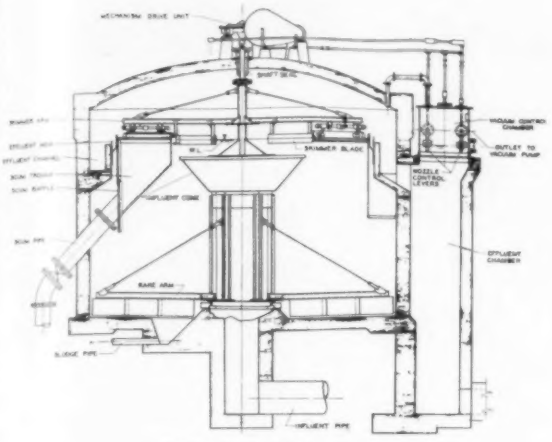
TUNE IN "WHAT'S NEW?" RCA's great new show, Saturday nights, 7 to 8, E. W. T., Blue Network.

RCA EMERGENCY COMMUNICATIONS EQUIPMENT

RCA Victor Division • RADIO CORPORATION OF AMERICA • Camden, N. J.

News and Illustrations

Items of Interest to City, Town and County Officials and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings



SECTIONAL ELEVATION

A sectional view of the Vacuator manufactured by The Dorr Co., 570 Lexington Ave., New York 22, N. Y. The most recent development for the removal of grease and suspended solids from sewage.

Grease, Suspended Solids Removed by Vacuum

The Dorrco Vacuator is a new unit, developed primarily for the removal of grease and light, difficult-to-settle solids from sewage and trade wastes, prior to clarification. Behind its development is the fact that suspended solids, in practically all domestic sewages and many industrial wastes, contain a light fraction that either tends to float or is difficult to settle.[6] Many factors affect the amount of this light fraction, the principal ones being: specific gravity, particle size, grease content, age of the solids pH value, and presence of entrained gas in sewage.

Dorr company engineers state that the use of vacuum flotation for the removal of these light solids is a logical advance from scum skimming devices as used in conventional sedimentation units. The process involving the Dorrco Vacuator accomplishes the flotation action in three steps. First, aeration in a conventional, mechanical aerator, where a maximum of finely divided air bubbles are entrained in the feed. Second, de-aeration in a small compartment or connecting channel, where the larger air bubbles that might cause surface disturbances are released. Third, the removal of the scum or grease in the Vacuator itself.

The Vacuator consists of a cylindrical steel or concrete tank with a dome-shaped cover, in which a vacuum of approximately nine inches of mercury is maintained.

After de-aeration, the feed enters the tank through a central draft tube, from which it is distributed by means of a vertical flared-top section close to the liquor surface. Floating solids buoyed up by the fine air bubbles, collect on the surface from which they are continuously removed by means of a skimmer; the skimmer moves the scum around to a trough, the top of which is slightly higher than the liquid level. The skimmer blades are hinged to two or more radial arms so arranged that they permit the blades to push the scum up a ramp to the trough. From here the scum discharges continuously by way of a barometric leg.

The effluent passes under a circular baffle and discharges over a weir into a peripheral effluent channel. From this channel it flows to a seal chamber, a barometric leg again being used to permit continuous gravity discharge against the vacuum.

Coarse solid particles that settle out are raked to a central sludge outlet by means of a bottom scraper mechanism that rotates with the skimmer. As in the case of the scum and effluent outlets, the sludge outlet also must be sealed off to prevent the loss of vacuum.

Sales Representative for Bartlett and Snow

Martell & Ferree, 1505 Race St., Philadelphia, has been named sales representative in the Philadelphia area comprised of Delaware, Southern New Jersey, and Eastern Pennsylvania for the C. O. Bartlett & Snow Co., Cleveland, Ohio, manufacturers of foundry, sand handling and conditioning equipment, dryers and other heat processing equipment, boiler plant, coal handling system, and conveying, elevating, and special processing equipment.

Martell & Ferree have handled certain of these lines before this new arrangement went into effect.

Save TIME—Save MANPOWER—
USE
STEWART
Sewer Cleaning Equipment

Regular Bucket Sizes 4" to 36"

Root Cutters, Sectional Steel Rods, End Tools, Propelling Nozzles.

No. 11 Screw

Root Cutter Sizes 4" to 22"

Also a complete line of—

- Steel Tapes
- Round Steel Rods
- Self-propelling Nozzles
- Flushers
- Wire Brushes

Also

- Windlasses, hand or power driven, may be purchased separately

No. 1 Sewer and Conduit Rod

Regardless of your sewer-cleaning problem, write us today, without obligation. Complete catalog sent promptly on request.

W. H. STEWART, 1051 S. CLINTON ST., SYRACUSE, NEW YORK

Are you looking for a man named BURKE?

Berc	Birk	Bourque
Berck	Birck	Borque
Berk	Birke	Buerck
Berke	Birque	Burk
Bhourque	Bourk	Burke
	Bork	Burck
	Borck	Buark
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No matter *how* he spells it, Remington Rand's Simplified Book or Vertical Soundex finds him instantly! Soundex is the simplest yet fastest name index ever developed.

With today's paperwork the greatest in our history, many Federal, State, County and Municipal governments are adopting Soundex to put their name records on an efficient basis.

Soundex is *not* "phonetic"... it *automatically* groups similar names . . . regardless of spelling. Accordingly, 97% of all names are infallibly classified, and an automatic cross-reference enables searchers to locate the other 3% promptly. *Thus Soundex is 100% accurate!*

With voters' lists, tax, property, motor vehicle, alien and countless other records, Soundex eliminates duplications, "lost" names and delay . . . assuring an amazingly high degree of protection against error.

Soundex actually pays for itself by saving valuable searching time and money as well as preventing costly errors. It is certainly worth looking into further . . . and we will be glad to send you full information. Write *now* to your local Remington Rand branch office or to the address below. *There's no obligation.*

A striking example of SOUNDEX applied to a list of 8 million names! Used in the filing of the Canadian National Registration, (which was installed with the assistance of Remington Rand Supervisors) filing and reference reaches unprecedented speed, with complete accuracy.

REMINGTON RAND
BUFFALO 3, NEW YORK

Showing a Cletrac MG-1 tractor on display at the recent Army-Navy "E" Award ceremonies.

Army-Navy "E" for Cletrac

At recent ceremonies the employees and management of The Cleveland Tractor Co., Cleveland 17, Ohio, were awarded the Army-Navy "E" in recognition of the company's contribution to the war effort. They have been engaged in the development and production of specialized crawler tractors for the Air Corps and parts for tanks, Bofor anti-aircraft gun, and half-trac cars.

The "E" award was presented by Lt. Col. T. H. Eichoff and received by Mr. L. H. Grutsch, Works Manager and Mr. V. O'Neal representing the employees.

Lt. Comdr. J. P. Sturgis, U. S. Naval Reserves, assisted by Sgt. Arthur E. Sizer, a veteran of the African campaign, presented the "E" pins to a group of five of the oldest employees of the company. Three of them represented labor and two the office staff.

The Hon. Frank L. Lausche, Mayor of Cleveland, was chairman of the presentation ceremonies and introduced the speakers.

Morris Machine Works President Dies

Stuart J. Saks, President of the Morris Machine Works, Baldwinsville, N. Y., died on September 5, 1943, at the age of 52

Mr. Saks was made president of the company two years ago, directing its increased activities as it became involved in war work. He was a veteran of World War I, having served as captain in the Second U. S. Calvalry. After the war he entered the newspaper field and was with International News Service in New York and The Associated Press in Pittsburgh. Following that he held executive positions in several manufacturing companies before joining Morris Machine Works three years ago.

Mr. Saks was active in the civic affairs of his community and a director of the United War Fund campaign conducted recently in Baldwinsville. He was a member of the Syracuse Rotary Club and a former president of the Syracuse University Alumni Association in Baldwinsville.

Water Purification Plants

Most of our effort nowadays is confined to building water purification plans for U. S. Government projects.

Under the circumstances, it is our aim to do the best possible job in this direction and at the same time continue to serve municipalities.

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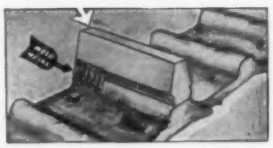
Consult us at any time—no obligation

E. W. BACHARACH & CO.

Rialto Bldg., Kansas City, Mo.

Rebuild your
TRACTOR GROUSERS WITH BULLDOG *Grip-Lugs*

EASILY



WELDED

Send for Bulletin "AC-9"

INCREASES TRACTION EFFICIENCY

A QUICK AND ECONOMICAL REPAIR

Allied Steel Products, Inc.

N. B. C. Bldg. Cleveland 14, Ohio

LAKESIDE

New

CENTRIFUGAL NOZZLE

FOR AERO-FILTERS

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Lakeside's new centrifugal nozzle consists of two pieces, body and cover. These are designed so that all threads for attaching cover to body are eliminated. It is only necessary to set the cover on the body outlet and give it a slight turn to the left to lock it in place.

The cover is also designed to prevent plugging of the orifice by matches and other accumulated material.

★

Let us cooperate with you in the design of your sewage plant for post-war construction. Aero-filter plants have lowest initial and operating cost.

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WRITE FOR BULLETIN

LAKESIDE ENGINEERING CORP.

222 West Adams Street

Chicago 6, Illinois

Harley-Davidsons *Prove* their mettle

• Wartime service has given Harley-Davidson Motorcycles a rare opportunity to prove their unexcelled dependability. They have come through toughest overseas service with flying colors. And equally important, they have stood the test of increased home front demands—demonstrating the great value of their rugged construction and built-in quality by delivering long, trouble-free performance in police duty at a time when new machines are not available in sufficient numbers to meet all police requirements. And in the years to come, experience gained in wartime's grueling action will assure police departments still greater stamina and performance in Harley-Davidson Motorcycles.

HARLEY-DAVIDSON MOTOR COMPANY
Milwaukee, Wisconsin

HARLEY-DAVIDSON MOTORCYCLES

ARMY E NAVY

ON AMERICA'S FRONT LINES OF ACTION

Walker Penfield *Floyd Walker* *A. E. Gaydos* *V. K. O'Connor*

Penn Salt Reorganizes Central Office Staff

The recent reorganization of the central office manufacturing and engineering staffs of the Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Philadelphia 7, Pa., has resulted in four promotions, according to Y. F. Hardcastle, vice-president in charge of manufacturing. The reorganization will take care of the heavy expansion of the company's manufacturing activities.

Walker Penfield has been appointed works manager and will be in charge of all manufacturing activities of the company and subsidiaries except the Pennsylvania Salt Mfg. Co., Washington. Floyd H. Walker is appointed chief engineer and will be in charge of the Central Engineering Division. A. E. Gaydos has been named assistant to the vice-president in charge of manufacturing and has been assigned special duties. Vincent K. O'Connor has been appointed manager of the newly created Personnel Department in charge of handling all personnel matters and labor relations.

"E" Star Awarded to Autocar

A sustained high-production record brings to The Autocar Company, Ardmore, Pa., the Army-Navy "E" Star. This additional honor means that a white star can now be shown on the Army-Navy "E" pennant previously awarded this company and being displayed by the various plants directly engaged in war work.

Also new employees, hired since the first award was made, are now entitled to wear the "E" pins.

Make Your Copies Legally Acceptable

You can make photo-exact copies of anything written, printed, drawn, or photographed that will be accepted in the courts as legal evidence, if you use the APeCo photocopy machine in making these duplicates—according to the American Photocopy Equipment Co., 2849 N. Clark St., Dept. F-10, Chicago 14, Ill.

The economical, ruggedly built machine, described in a free folder published by this company, is simple to operate and makes copies remarkably fast. It will handle material as large as 18 x 22 inches, will make a single copy in three minutes, and make multiple copies at an average of about two per minute. The manufacturer asserts that an inexperienced operator can run it with perfect satisfaction.

The American Photocopy Equipment Co. points to the time-saving features of the machine, since it can quickly copy letters, blueprints, drawings, work orders, specifications, photographs, records, or any other piece of material that municipal officials ordinarily desire to reproduce.

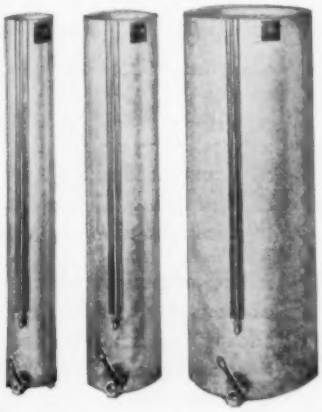
Personnel Changes at Du Pont Company

Charles B. McCoy has been named Director of Sales of the Explosives Division, it is announced by the Explosives Department of E. I. du Pont de Nemours and Co., Wilmington 98, Del. He has been serving as Director of Chemical and Miscellaneous Sales.

Mr. McCoy succeeds Samuel G. Baker, who has been made manager of the company's Electroplating Division.

CALIBRATED
TANKS

Accurate, durable and dependable. Made in five sizes; calibrated in gallons and cu. ft., also in percentages fast and slow.



These tanks are made of heavily galvanized steel, have quick opening drain valves and brass gauge strips.

FORD METER BOX CO.,
WABASH, IND.

M H

GATE VALVE MAINTENANCE

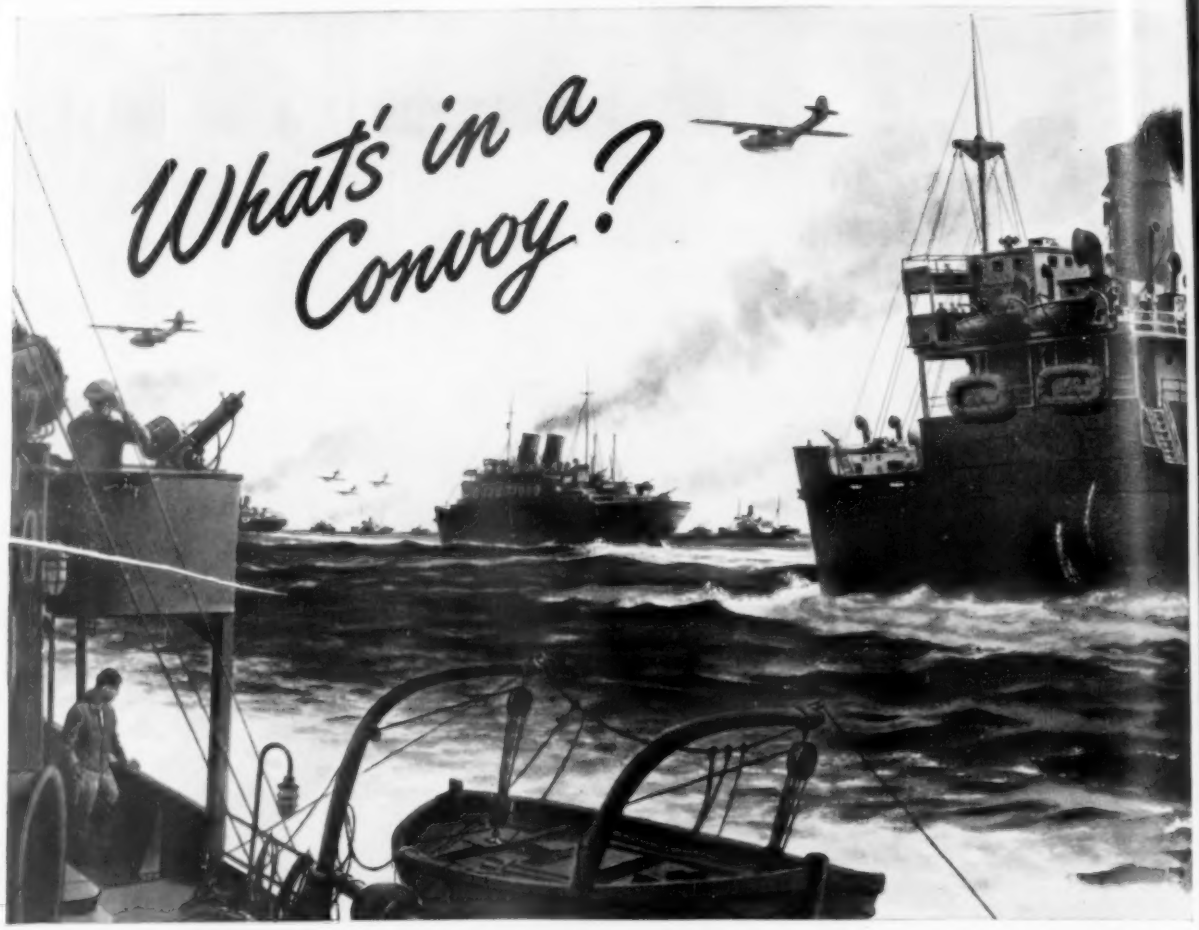
A trade magazine recently asked a well known consulting engineer and water works operator to write a paper on the Maintenance and Operation of Gate Valves. He replied: "I have had so little experience with maintenance since I have been using M & H Gate Valves that I am rusty on the subject, but I will make an effort to write something."

OTHER M & H PRODUCTS

Fire Hydrants	Floor Stands
Gate Valves	Extension Stems
Tapping Valves	Mud Valves
Special Castings	Flap Valves
Tapping Sleeves	Sludge Shoes
Check Valves	

Write for Catalog No. 34

M & H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA



Manufacturing for War

The manufacture of aircraft equipment for the Government and the manufacture of Burroughs figuring and accounting equipment for the Army, Navy, U. S. Government and the nation's many war activities, are the vital tasks assigned to Burroughs in the Victory Program.

★

BACK THE ATTACK!

BUY MORE WAR BONDS

★

As a noteworthy instance, 700,000 different items of equipment and supplies in varying quantities crammed the convoys that carried American armies to conquest in North Africa—250,000 different items of ordnance; 100,000 different Engineer Corps articles; 68,000 different items of medical supplies and drugs; 10,000 different items for the Signal Corps; 390 different articles of clothing.

Countless hours of planning and figuring, as these statistics suggest, are essential in establishing the types and quantities of items needed . . . amassing them at the assigned embarkation points . . . dividing them strategically among the ships, to minimize the danger of crippling loss of any one item.

Allied superiority in the science of supply is increasingly obvious day by day. To the vital figure work involved, Burroughs adding, calculating, accounting and statistical machines bring a speed and an accuracy indispensable to the magnitude of the undertaking.

BURROUGHS ADDING MACHINE COMPANY, DETROIT, MICH.

Burroughs

FIGURING, ACCOUNTING AND STATISTICAL MACHINES • NATIONWIDE MAINTENANCE SERVICE • BUSINESS MACHINE SUPPLIES

E. A. Phoenix Wins Promotion

E. A. Phoenix has recently been named Assistant Manager of the Transite Pipe Department of Johns-Manville, 22 East 40th St., New York 16, N. Y. He will serve under C. A. McGinnis, Manager of the department, and specialize in field sales and educational phases of the business.

E. A. Phoenix

Mr. Phoenix' long association with the company entitles him to membership in the Johns-Manville Quarter-Century Club, an honorary organization comprised of those who have been in the company 25 years or more. After serving in various sales and advertising positions, Mr. Phoenix was made Assistant Sales Promotion Manager in 1936. In May 1942, because of his knowledge of the company's widely diversified product lines, he was transferred to the Priorities Department, a position which he held until his recent promotion to Assistant Manager of the Transite Pipe Department.

Army-Navy "E" for J. D. Adams

At a colorful ceremony on August 13, at the company's plant, the Army-Navy "E" was presented to the employees and management of J. D. Adams Co., Indianapolis, Ind. The award is based upon production of motor graders, leaning wheel graders, elevating graders, tamping rollers for the Army, Navy, and Marine Corps. In addition to its regular products the company is engaged in the manufacture of gun recoil mechanisms and in the processing of armor plates for tanks.

Reading left to right: Roy E. Adams, President of the firm; Col. H. A. Montgomery of the Supply Division, Office Chief of Engineers, Washington; Thomas A. Whited, veteran office employee, and Ralph Harrmann, representing factory employees, holding the Army-Navy "E" pennant presented with the award.

89 years

OF PROGRESSIVE STORAGE TANK ENGINEERING!

Established in 1854, the R. D. Cole Mfg. Co. has long been recognized as one of the nation's outstanding tank builders. With 89 years of progressive storage tank experience at your disposal, we shall welcome the opportunity to serve your tank needs.

1,000,000-Gallon "Cole-Shallow Depth" Tank

ALL SHAPES AND SIZES

The R. D. Cole Mfg. Co. has developed a complete line of elevated steel tanks for water supply, both for domestic service, and sprinkler requirements, ranging in capacity from 5,000 to 2,000,000 gallons. The designs include the standard Hemispherical and Self-supporting bottom, the "Cole Ovaloid," Standpipe, and many individual styles involving architectural treatment to satisfy local conditions, or to provide special shapes for advertising purposes.

STORAGE TANKS

Pressure tanks for storage of gas from digestors at sewage disposal plants so that excess output at peak loads can be used during off-peak periods. Chemical storage tanks, hot water storage tanks, tanks for bulk storage of oils and gas.

CONSTRUCTION FACILITIES

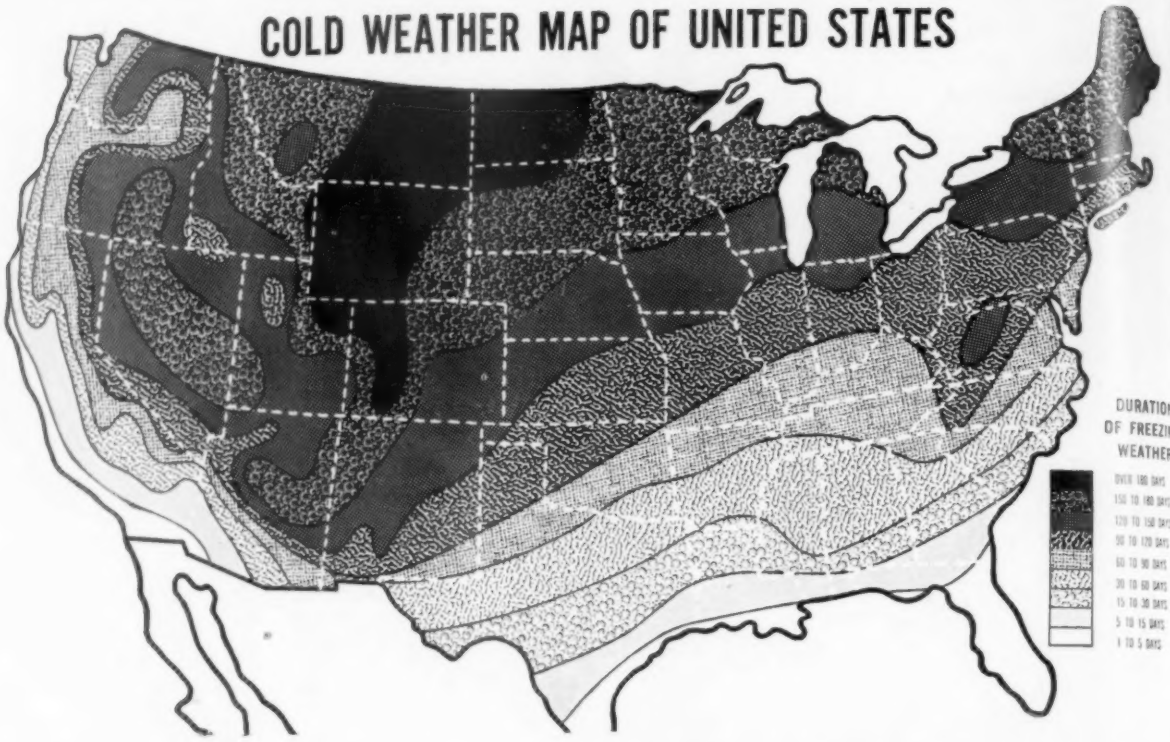
Fabricated steel plate — the R. D. Cole Mfg. Co. has a fully equipped plant for the fabrication of riveted or welded steel plate. In addition to the construction of its regular line of horizontal return tubular boilers, oil storage tanks, tubular heaters, etc., the company is prepared to construct special tanks and apparatus of any specified metal plate.

Designs available for any service, made to your specifications or from our designs submitted by our own Engineering Department.

R. D. COLE MFG. CO.

Established 1854

NEWNAN, GEORGIA


COLD WEATHER MAP OF UNITED STATES
DURATION OF FREEZING WEATHER
OVER 180 DAYS
150 TO 180 DAYS
120 TO 150 DAYS
90 TO 120 DAYS
60 TO 90 DAYS
30 TO 60 DAYS
15 TO 30 DAYS
5 TO 15 DAYS
1 TO 5 DAYS

Prepare for Ice Control Before Winter Comes

Jack Frost moves in on us EVERY year whether he is wanted or not and stays as long as six months in some sections of the country, as the above map shows.

Before winter, squirrels store away their food, householders their fuel and farmers their fodder AND foresighted officials do their fall stockpiling for ice control.

Highway departments that prepare stockpiles of abrasives treated with calcium chloride BEFORE WINTER ARRIVES save a lot of grief and expense.

Experience and tests show that 1 load of calcium chloride treated abrasives gives skidproofing effect equal to 3 loads of untreated grits. This means, therefore, that only one-third of the number of trucks and men are needed to do the same job.

Do it the EASY way before the freezeup instead of the HARD way in a blizzard. The EASY way is the ECONOMICAL way.

Abrasives treated with calcium chloride:

(1) Stay unfrozen. Stockpiles open up easily for handling.
(2) Load fast and spread evenly.
(3) Bite into ice, give traction immediately and stay anchored.

Ask for a free copy of Bulletin 27, detailing recommended practice for better, faster, easier ice control. Calcium Chloride Association, 4145 Penobscot Bldg., Detroit 26, Michigan.

CALCIUM CHLORIDE

FAST • POSITIVE • ECONOMICAL

MAKES ICY ROADS SAFER
•
SAVES UP TO $6.00 A MILE EACH TREATMENT

The "Sewer Master" ready to go to work on a sewer job.

How to Clean Sewers

Although not taking time out to celebrate its 50th anniversary of continuous service, The Oster Mfg. Co., East 61st St. at Carnegie Ave., Cleveland 3, Ohio, with its powerful little "Sewer Master" Electric Sewer and Pipe Cleaning Machine, still remains a strong helper to municipal officials charged with maintaining sewers.

This easily portable little machine is able to clean sewers regardless of alignment or presence of traps and bends. Officials who have used it say that it is excellent for emergency use where clogged lines must be opened immediately.

Catalog No. 43 published by this company fully describes the "Sewer Master."

New Addition to Keystone Sales Staff

James (Jim) Poole

The Keystone Asphalt Products Co., 43 East Ohio St., Chicago 11, Ill., has announced the recent appointment of James (Jim) Poole to the sales forces of the company.

Mr. Poole will assist Mr. T. R. Johnson, Sales Manager of the company in national sales work, and will have his headquarters in Chicago.

Climax Presents Small Diesel Engines

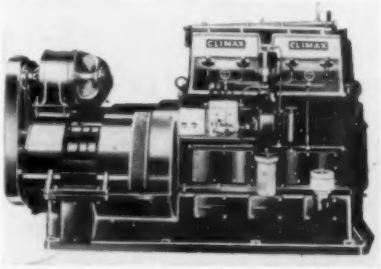
The production of two diesel engines engineered to meet light power load requirements economically has just been announced by Climax Engineering Co., Clinton, Iowa, well-known manufacturers of gas engines with several interesting installations in the sewage-treatment field.

Both new engines are 4-cycle, full diesels, and intended for duties such as electric power producers and primary drives for pumps and compressors.

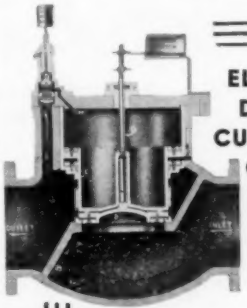
Model D148 is a two-cylinder unit with a maximum rating of 28 hp and a recommended speed of 1200 rpm. It may be equipped for pulley drive with or without clutch, or clutch and reduction gear, or auxiliary power take-off. As a diesel electric plant it may be directly connected on a single base, with a 15 kva generator.

Model D297 is a four-cylinder unit with a maximum rating of 44 hp at 1200 rpm. Drive equipment similar to Model D148 may be furnished. A special feature of D297, however, is that a flywheel, clutch, or generator may be installed on either or both ends, provided that a radiator is not used. For electric power and light, the D297 may be used to power a 30 kva generator.

Features of the new Climax diesels are a one-piece crankcase and cylinder housing for rigidity and alignment, replaceable chrome nickel iron cylinder liners, and water-cooled exhaust manifold.



One of the two new Climax stationary engines designed to bring diesel economy to the small power user. Note the compact arrangement between the engine and the generator.



ELECTRIC DOUBLE CUSHIONED CHECK VALVE

★

This valve is for use in connection with remote tank storage service with valve located adjacent to motor centrifugal pump, also where a high-low pressure or float-operated switch located at tank is wired to the valve in order to accomplish complete automatic sequence of operation for starting and stopping the pump with respect to storage water levels.

Sizes 3" to 36," angle and globe patterns.

Write for Specifications

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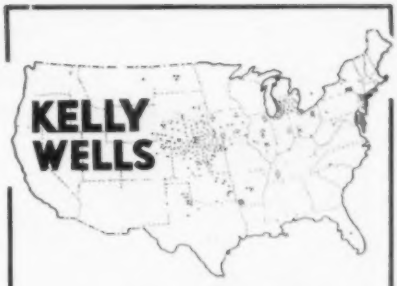
Fulton Building Pittsburgh, Pa.



ALL OVER THE MAP!

For 25 years Kelly concrete cased wells have stood the test of time. We have several thousand now in service, covering a territory of 33 states and parts of Canada.

Kelly concrete cased wells are especially adapted for developing large water supplies from sand and gravel formations.

We Guarantee our wells to develop all available water, sand free, to their full capacity.

KELLY WELL CO., INC.
Grand Island, Neb.

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DRY BRAIDED
Fibrex

Airports like this will Serve for Years of Peace

Group take-off of Navy training planes on concrete runways at the large Naval Air Station, Glenview, Ill. (Official U. S. Navy Photograph)

The adequacy and safety of airport facilities for war or peace depend on the application of proved engineering principles to the design of airport runways.

Engineering design formulas for wheel loads of more than 150,000 lb. provide concrete runways of unquestioned stamina without wasteful overdesign or danger of early failure under traffic.

Concrete airport pavement designed for heavy wartime needs will continue to give years of peacetime service at low annual cost.

For heavy duty wartime or peacetime traffic the first cost of adequately designed concrete runways is usually not more but *LESS* than that of other pavements of equal load carrying capacity.

Our experienced engineers will gladly assist in the design of concrete war or postwar airport pavements.

PORTLAND CEMENT ASSOCIATION, Dept. A10-4, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

Buy more war bonds

Miller Takes Post with Chloride Association

H. Hershey Miller has been engaged as an engineer representative of the Calcium Chloride Association, with special assignment as counsellor on concreting.

H. Hershey Miller

For many years he was Chief Materials Engineer for the Pennsylvania Department of Highways and later Testing Engineer for the Pennsylvania Turnpike Commission. For the past three years he has been resident engineer of the Pennsylvania Sand and Gravel Producers' Association.

He is author of a number of articles on concrete problems and has served on committees of the Highway Research Board, American Society of Testing Materials, and Pennsylvania Society of Professional Engineers, and now is President of the Engineers Society of Pennsylvania.

Union Metal Purchases Electric Apparatus Plant

The Union Metal Manufacturing Co., Canton, Ohio, peacetime manufacturers of steel street-lighting standards, pile castings, Monotube poles, and materials handling equipment, has purchased the controlling stock of the Superior Switchboard and Devices Co., Canton.

Officers of the newly purchased firm are: President, C. A. Orr, who is also President of The Union Metal Manufacuring Co.; Secretary, C. A. Streb, who is also Secretary of Union Metal; Treasurer and General Manager, V. J. Lajeunesse, formerly manager of lighting sales for Union Metal. Also, on the executive staff are A. G. Reynolds, Assistant Secretary and Vice-President in Charge of Engineering, and T. R. Davies, Vice-President in Charge of Sales, both of whom held the same positions with the Switchboard organization.

The new Board of Directors will consist of Mr. Orr, Mr. Streb, and Mr. Lajeunesse. Richard V. Grace, formerly President and Treasurer of the Switchboard company has resigned. The company's personnel, consisting of about 150 employees, otherwise remains the same.

Hydraulic Slide-Rule Free

Water-works men and engineers who have been wondering where they might obtain the Hazen-Williams hydraulic slide-rule need only drop a line to the Lock Joint Pipe Co., Ampere, N. J.

"Some time ago it came rather forcibly to our attention," said F. F. Longley, Vice President, "that the Hazen-Williams hydraulic slide-rule in the conventional form was off the market, and being aware of the demand for such a useful tool in connection with pipe-line problems, we had a quantity of them made in a simple but convenient form."

With the rule is included instructions on how it may be used.

Honor Roll Plaque

Municipal officials will be interested in the honor roll plaque manufactured by E. J. Hayden & Co., Inc., 23 E. 21st St., New York 10, N. Y.

This plaque is constructed of a plastic and finished with a hand-rubbed, gold-bronze spray which gives a real bronze effect. The master plaque is 18" x 12" and carries 16 name plates. Communities who need more than the 16 name plates supplied by the original unit, may secure extension plaques.

Plastic honor roll

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Quick, positive location of underground leaks!

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● No Industrial Plant, Public Utility or Institution having underground piping, water or steam can afford to be without a Globe Geophone in its maintenance department. Recommended by hundreds of satisfied users!

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Department "H" Reading, Mass.

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Royers Serve 3 Ways

A LARGE proportion of the more than 5,000 Royers in service today are compost and sludge machines used by municipalities which have found this rugged, inexpensive unit a profitable investment because of the three labor-saving services it performs.

Model "O" on park lawn work

Model "NSC-2" shredding sludge

Royer "Jr." mixing running track material

1. In the Parks

It shreds, mixes, aerates and loads in a single operation all the materials used to make top dressing such as manure, sand, loam, sod, leaf mold, dried sewage sludge, etc.; discharging a compost which results in beautiful lawns at minimum cost. All that need be done is to turn on the power and shovel the material into the conveniently low hopper. The endless steel-tooth belt does the work. Sticks, stones and trash are removed by the machine. The mixed compost may be piled in windrows on the ground or loaded into trucks. Operation is six to ten-times faster than can be done by hand, and mixing is far more thorough.

2. At the Sewage Plant

It turns the expense of sludge disposal into a profit item. It takes sewage sludge from the drying beds; breaks up, shreds, aerates and further dries it; turning out a valuable and marketable fertilizer, which can also be used in the city parks. Chemicals may be mixed in during the same operation to make a high strength fertilizer.

3. At the School Grounds

Whatever mixture is needed —of cinders, sand, calcium chloride, cement or clay— for walks or athletic grounds —the Royer will save time and money on the mixing job.

Royers are made in twelve portable and stationary models — electric motor, gasoline engine and belt-to-tractor drive—a type and capacity for every city. You will find the Royer a time and labor-saver on so many jobs that it will soon pay for itself. It takes the place of the men who are hard to get. Send for Bulletin 440.

THE ROYER

ROYER FOUNDRY & MACHINE CO.
179 PRINGLE ST., KINGSTON, PA.

Carbon Dioxide Fire Extinguisher

Carbon dioxide is your fire fighter, if you use the new C-D/FOG extinguisher made by the General Detroit Corp., 2200 East Jefferson Ave., Detroit, Mich. The extinguisher is reported capable of killing the fire in a few seconds, as it penetrates every corner and excludes the oxygen necessary for combustion. It may be discharged safely on live electric equipment. It easily handles fire originating in oils, greases, flammable liquids, and other difficult places.

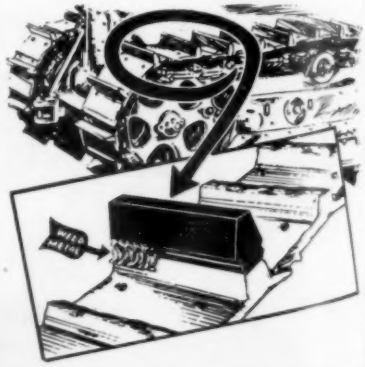
Salvaging Worn Tractor Grouser Shoes

Tractor users faced with the problem of replacing worn grouser-shoes with new parts, will be interested in a new development of the Allied Steel Products, Inc., N.B.C. Bldg., Cleveland 14, Ohio—their Bulldog brand tractor grip-lugs.

Worn grousers on tractor shoes will cause tracks to lose their "gripping power" and can be easily repaired by welding on the old grouser shoe a specially designed steel bar with a groove and bevel to facilitate laying welding bead along the edge which holds the bar and the grouser shoe together.

The manufacturer points out that over 80 per cent of the metal of the old shoe is thus salvaged, releasing that much critical metal for urgent government needs. Meanwhile the operator has put his tractor back into good condition at considerably less replacement cost and without delay.

New literature describing material and the methods of application will be furnished free upon request.



Showing the tractor grip-lugs for replacing worn grouser-shoes.

Lefebvre Named President of Cooper-Bessemer

Gordon Lefebvre is the new President and General Manager of The Copper-Bessemer Corp., according to an announcement by the Board of Directors of that company. Mr. Lefebvre succeeds Mr. B. B. Williams who will remain active in the corporation, continuing his duties as Chairman of the Board.

Gordon Lefebvre

In his previous capacity as Vice-President and General Manager of the company, whose two plants are located at Mount Vernon, Ohio, and Grove City, Pa., Mr. Lefebvre has been particularly active in helping Cooper-Bessemer reach its present high peak in the production of marine engines for the Navy and Maritime Commission and stationary power units and compressors used by vital war industries. He has also been cited frequently for his efforts in building up friendly relations between labor and management, having cooperated closely with labor-management committees since they were started.

All Mack Plants Get Star "E" Awards

The three plants of Mack Trucks, Inc., 350 Fifth Ave., New York, located in Plainfield and New Brunswick, N. J., and Allentown, Pa., recently received the star addition to the "E" flags in short ceremonies held at the plants. Army and Navy personnel, Mack executives and employees were present for the brief production award presentations which came six months after the plants had received the "E" flags.

While essential war production during recent months showed some decline in many industrial areas, company officials state that production in Mack plants remained at peak level. When the plants received the original "E" flags six months ago, Under Secretary of War Robert P. Patterson congratulated the Mack employees on their outstanding contribution to victory and practical patriotism. A similar message was relayed to the employees at the recent ceremonies.

Mack is one of the few multi-plant manufacturers that can boast of having received both the "E" flag and the Star "E" flag for production in all its vairous plants.

WHEN PRIORITIES ARE DEAD

and water works can obtain new equipment for rehabilitation and extension, there'll quite naturally be an increased demand for long distance telemetering of flow through main lines and levels in far away elevated tanks and in reservoirs. Automatic pump control will also be required.

Right now the CHRONOFLO is serving importantly in ordnance plants and army concentrations. It will have broad application for your new work.

A postcard brings 12-page illustrated Bulletin 320-A. Address Builders-Providence, Inc. (Division of Builders Iron Foundry), Providence 1, R. I.

Sincerely Yours,

BUILDERS-PROVIDENCE

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AIR RELEASE VALVES

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We are able to service every need in all types and sizes. We would be happy to receive your request for samples and quotations.

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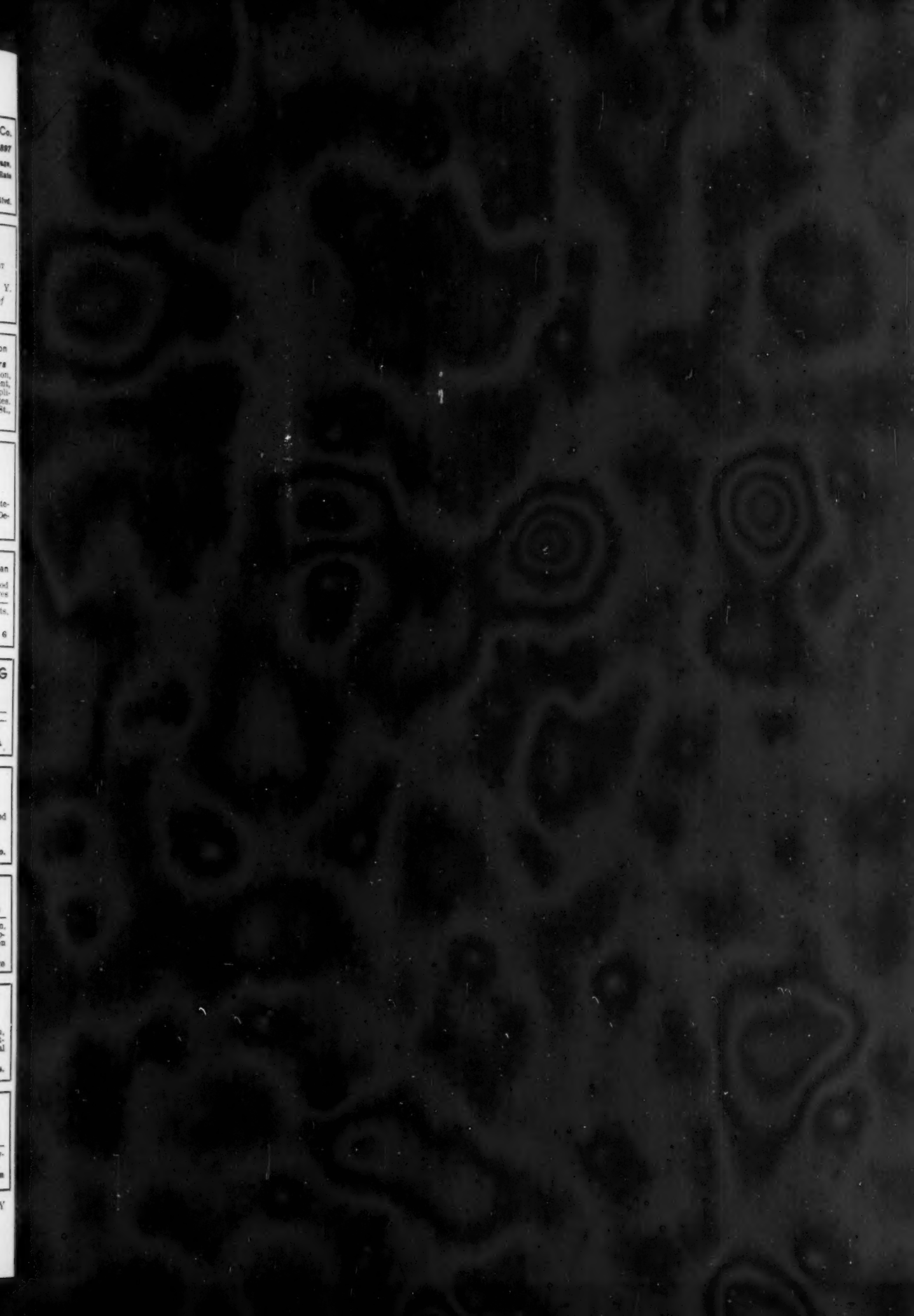

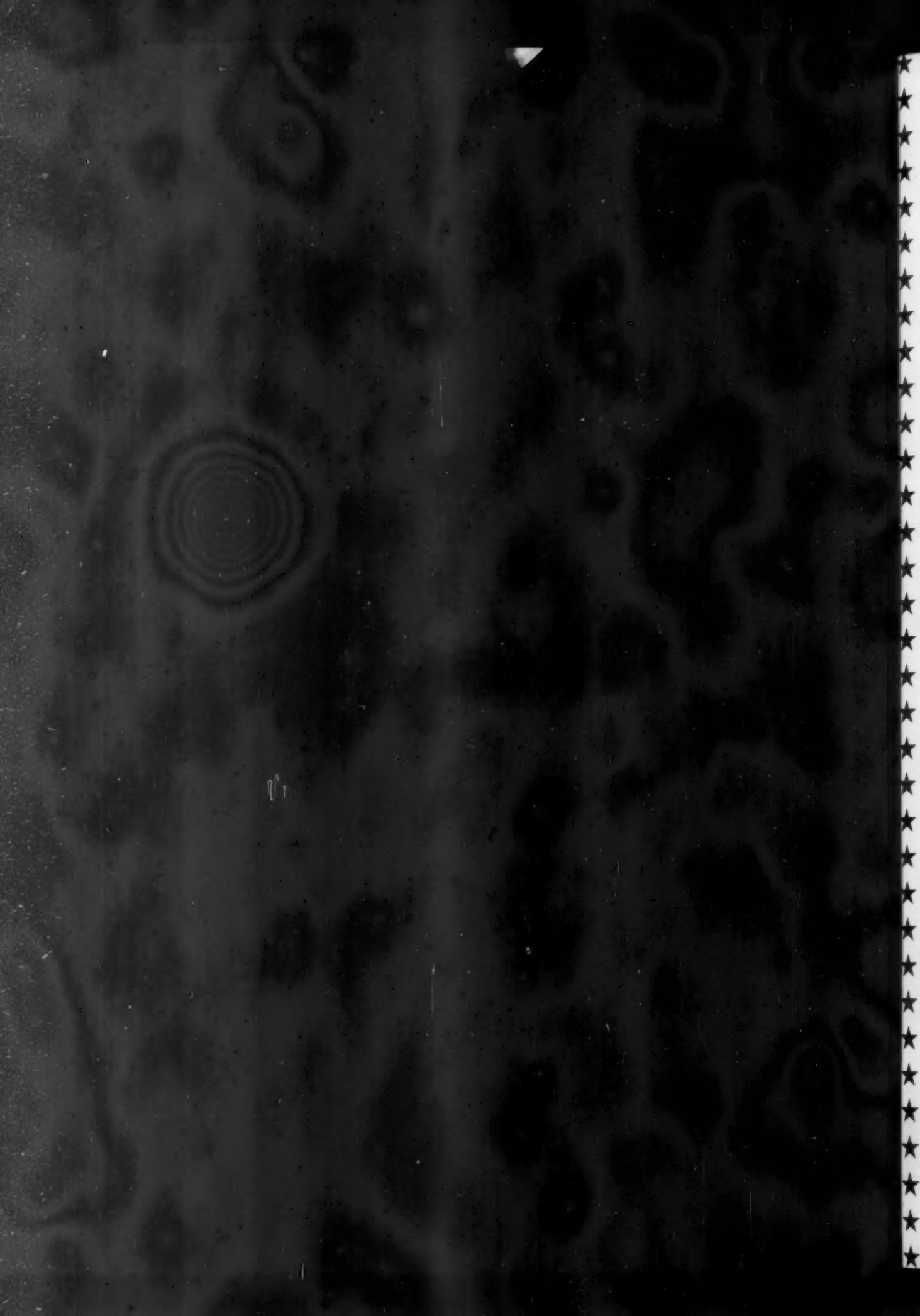

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The American City

Community Planning for Post-War Jobs and Projects

By ERIC A. JOHNSTON

President, Chamber of Commerce of the United States

IN PLANNING for post-war employment, local chambers of commerce hold a key position. Not the least of their activities should be a program for cooperation with municipal governments in the development of plans for construction of public works. The local chambers are the logical agencies through which coordination of the post-war planning of private business and of public bodies may be accomplished.

Business men with faith in the private enterprise system recognize that they cannot do the job alone. Public works under the cities and counties, as well as the states and the national government, have a vital place in our economy. We want to avoid leaf-raking projects as much as possible, and also do not wish to infringe upon the field of private enterprise. Nevertheless, we realize that many desirable public works projects have been held back during the war and that an expansion of activities of this nature in the period of demobilization will help to reduce the amount of threatened unemployment. If private business through the local chamber can have a voice in the determination of the plans, much will be gained in keeping them on a proper plane and in harmony with its own efforts.

A program for cooperation with municipal governments is, of course, secondary to the primary effort of the local chambers to stimulate employment through private enterprise. As actively functioning organizations composed of all elements of business and industry in the communities, the local chambers are best able to direct the planning for maximum employment in the stores, offices, and factories. As the medium for a coordinated program of public and private employment, the local chambers have a major responsibility in the readjustment of our economy to peace.

The United States Chamber of Commerce is keenly interested in community planning, and is ready to provide information and direct service to municipal officials and chambers of commerce.